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ABSTRACT

One of a series of publications which provides information about the geography of the Netherlands to institutions and persons outside the Netherlands, this publication discusses the geography of and land use in South Limburg, a region in the southeastern part of the Netherlands. There are four sections. The first provides a history and describes the region. South Limburg has three special features. It is the only part of the Netherlands where part of the land is more than 200 metres above sea level, the only region where economic development has resulted mainly from mineral extraction, and it is international in character. Discussed are the origin of the landscape, mineral extraction, agriculture, coal mining and restructuring, boundaries, and excursion routes. Statistical data on land use, demography, the economy, agriculture, mineral extraction, manufacturing, and trade are dealt with in the second section. The third section contains brief notes on traffic, civil engineering work, and physical planning. The concluding section describes the aims and activities of the Information and Documentation Center for the Geography of the Netherlands. The appendices contain a bibliography and an index to topographical maps. (RM)

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Utrecht — The Hague, 1982

The cover photograph shows the coal mining industry which dominated the landscape of South Limburg during the first half of this century. The sudden cessation of mining around 1970 has made an equally strong mark on the current problems of the region.

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FOREWORD

This is the seventh edition of the annual IDG Bulletin and the second issue in which a Dutch *region* forms the subject of the leading article. On this occasion we take a look at South Limburg, in the south-east of the Netherlands. The article deals with various geographical themes which may be of interest either because of their general relevance or because of the way in which they are typical of contemporary Western Europe. They include subjects such as the conflict between landscape conservation and mining, the restructuring of a former mining area and cross-frontier activities in an internationally oriented region. South Limburg also provides good examples of such concepts as change of scale and landscape perception. *Within the Netherlands* South Limburg is an eccentrically situated region with a unique landscape; *within North West Europe* it is very central and has a landscape which is remarkably similar to large parts of the rest of North West Europe.

The leading article is again followed by a chapter of Statistics; this time they consist of the 1981 figures relating to the themes dealt with in the third edition of the IDG publication "A Compact Geography of the Netherlands" (1978).

The issue concludes with the usual sections: Brief Notes, About the IDG, and a Bibliography. *)

The IDG wishes to thank all those who have collaborated in the production of this Bulletin. Our special thanks are due to Prof. H. Breuer and Dr. M. Gramm of the Geography Department of the Reinisch - Westfälische Technische Hochschule in Aachen and of various sections of the Central Bureau of Statistics.

As always, the IDG welcomes your comments and observations on this Bulletin and will be pleased to receive your suggestions for future editions.

Utrecht/The Hague
Autumn 1982

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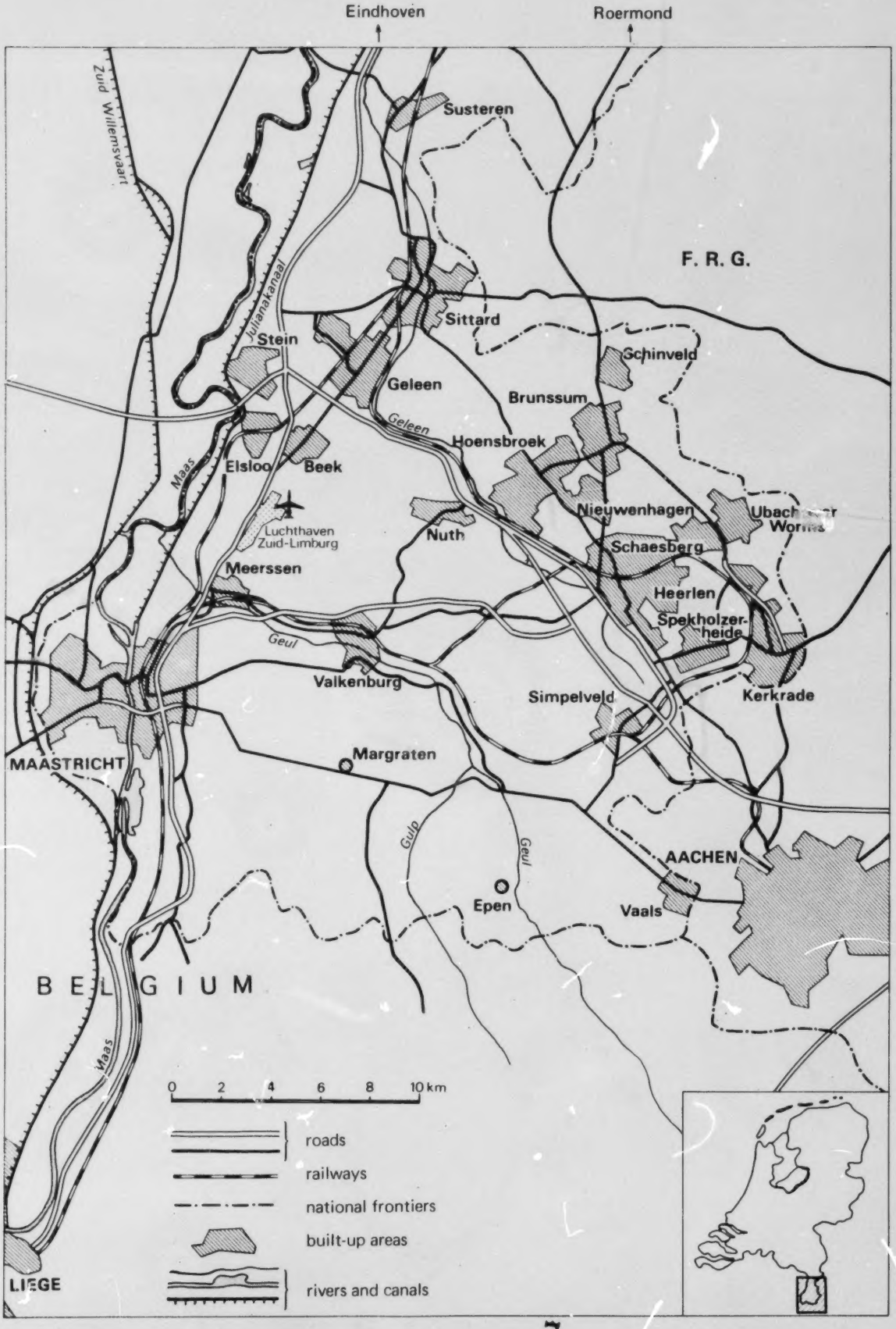


Fig. 1 – General map of South Limburg.

I – SOUTH LIMBURG

I.1. Introduction

A quick glance at the map shows that the south of the province of Limburg forms a remote corner of the Netherlands, and occupies an eccentric position relative to the economic and administrative heart of the country – the Randstad. This fact continues to influence the socio-economic development of the region although there are other ways in which South Limburg occupies a special place in the Netherlands. In Dutch eyes it is different because of its landscape: it is the only part of the Netherlands where part of the land is more than 200 metres above sea level.
It is, moreover, the only region where economic development has resulted mainly from mineral extraction. A third special feature to the region is its international character, a consequence of the fact that it is bounded on three sides by foreign territory (fig. 1).

The purpose of this article is *not* to give a catalogue of the regional geography of the area. Each of the aspects briefly referred to above will be discussed in the following three sections, each with a case study of a particular sub-area. The following aspects will therefore be dealt with in turn:

I.2. – Nature and landscape, recreation and environmental management. Case study: the discussions surrounding the plans for open lime.tone quarrying on the Margraten Plateau.

I.3. – Vanished coal mining and industrial restructuring.
Case study: the development of the Eastern Mine District.

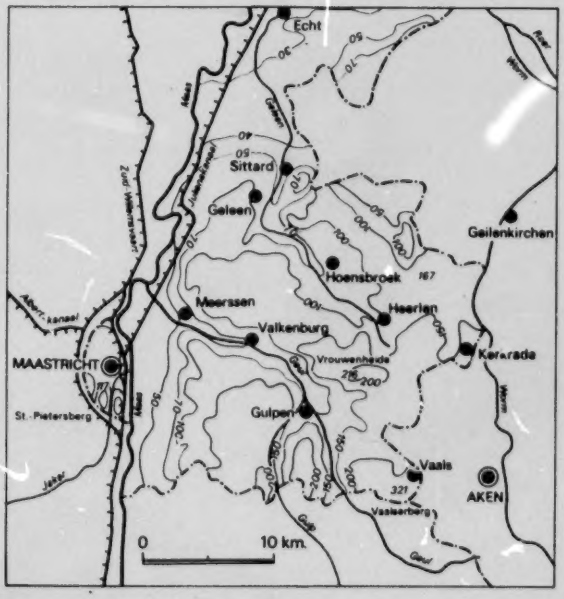
I.4. – South Limburg as a partner in the Meuse-Rhine Euro-region.
Case study: Vaals.

Then follows a description of an excursion route which combines a number of the aspects referred to above.

I.2. – Nature and landscape, recreation and environmental management

I.2.1. General

South Limburg is the only region in the Netherlands containing significant areas more than 200 metres above sea level. The highest point in the Netherlands (+ 321 metres, fig. 2) is to be found in the extreme south east, near the point where the Netherlands, Belgium and West Germany meet. The majority of the Dutch population live in flat and low-lying areas and therefore the accidented South Limburg landscape has a special appeal for them. Many of them spend their holidays there and the area therefore has a large amount of holiday accomodation (hotels, camping sites). South Limburg covers 2% of the surface area of the Netherlands but accounts – by way of example – for 3.26% of the national total of sleeping



—150— contours in metres

fig. 2 – Relief map of South Limburg.

spaces on camp sites, i.e. more than 45,500 on more than 78 sites. The most important tourist centre is Valkenburg, where the number of beds in hotels and boarding houses and sleeping places on camp sites is nearly as large as the number of inhabitants.

However, the people of the surrounding countries view the landscape of South Limburg in a different way. For instance the South Limburg landscape has little to offer the inhabitants of the Belgian Ardennes or the German Eifel, and they are more likely to spend a holiday in the Netherlands at one of the seaside resorts.
This situation is illustrated by the figures below (Table 1).

Table 1 – Nights spent on camp sites, 1979

Area	Nights				
	Dutch people		Foreigners		Total
	absolute x 1,000	as % of national total	absolute x 1,000	as % of national total	absolute x 1,000
North Sea resorts	6,085	13.7	1,559	35.8	7,644
South Limburg	1,154	2.6	28	0.6	1,182
Netherlands total	44,346	100.0	4,357	100.0	48,703

Source: CBS, Statistical Yearbook, 1981.

One in five campers on the camp sites along the North Sea coast and one in 42 in South Limburg is a foreigner.

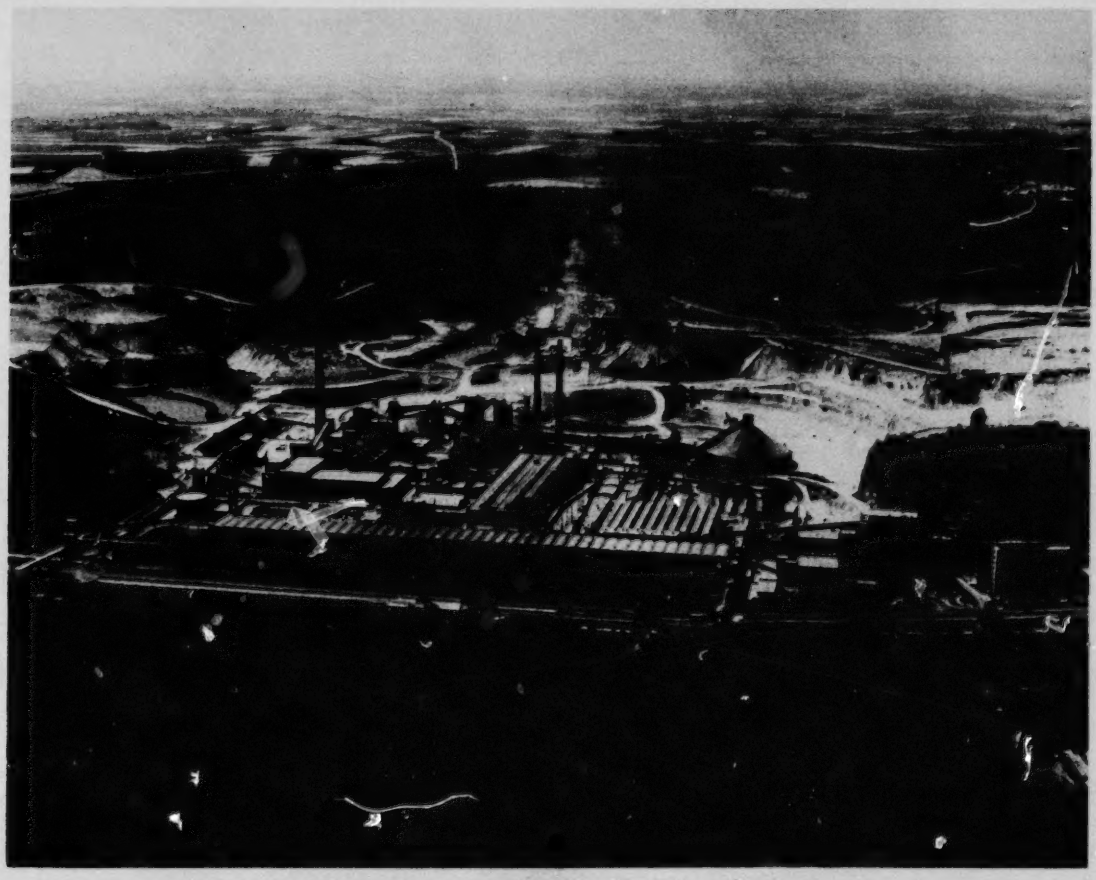
Photograph 1 – *Landscape of the South Limburg Plateau.*

Origin of the Landscape and mineral extraction

South Limburg does not consist of hills, but of an elevated plateau into which rivers and streams have cut deep valleys. The landscape shows marked similarities with that of the Ardennes (Plate I). As a result of an alternation of periods of predominantly lateral erosion with periods of downcutting, river terraces developed, and these are clearly visible, particularly along the Meuse.

Because the elevation of the earth's crust during the past few million years was the greatest in the south east of the Netherlands, the old rocks run from south east to north west under the whole of the Netherlands. During the Quarternary period, thick deposits of sediment were laid down by the sea and rivers in the lower parts of the country. South Limburg is therefore exceptional for the Netherlands not only because of its altitude, but because of the fact that it is virtually the only part of the country where rocks from the Tertiary and earlier periods are to be found near and at the surface. This occurs mainly along the sides of the valleys cut into the plateau by such rivers as the Meuse and the Geul. In the majority of the places Cretaceous limestone outcrops in these valleys, but there are also older rocks in a few places. In a stone quarry in the Geul valley, close to the Belgian frontier, the oldest rock outcrops in the Netherlands are to be found. They consist of 275 million year-old sandstone and slate strata from the Carboniferous period (Heimans Quarry near Epen).

Elsewhere coal seams occur in the Carboniferous deposits. In a few places coal was being mined in the early Middle Ages, but large scale mining did not develop until the late 19th century (cf. Section I.3.). It was made difficult by the disturbed nature of the coal seams, which are very thin and alternate with thicker layers of other rocks. The disturbed nature of the seams is the result of the presence of a number of SE-NW faults beneath South Limburg which lie along the edge of a large trough underneath a great part of the south-east Netherlands.



Photograph II — *The partly excavated St. Pietersberg. In the foreground, the ENCI cement works fronting the River Meuse (looking west).*

Coal mining was concentrated in two areas – around Heerlen in the east and around Geleen in the west – and has clearly made its mark on the landscape. It resulted in considerable urbanisation, particularly in the east, as well as slag heaps which dominate the landscape. Some of them have now become covered with vegetation and have been partly laid out as recreation areas. Another form of mineral extraction which has a considerable effect on the landscape is the quarrying of limestone and marl. Both have been used in building for many centuries: and many churches, monasteries, castles and farms in Limburg and in other parts of the Netherlands have been constructed from them. Marl and limestone were first extracted on a small scale by means of surface mining and signs of this are to be found in the large number of small quarries which have become overgrown with vegetation. Long before the present century production from surface mining was no longer sufficient and people began to cut out blocks of stone from the valley sides. In this way 170 passage systems or "caves" were created the total length of which is estimated at 500 kilometres. They form an ideal place for bats to hibernate in winter and for growing mushrooms.

However, it was not until the 20th century that the extraction of limestone and marl began to have a more devastating impact on the landscape. Potential use of the area greatly increased when it became apparent that limestone and marl were good raw materials for cement and lime fertilisers and as modern technology opened up new possibilities for exploitation. The St. Pietersberg south of Maastricht where a layer of marl tens of metres thick has been removed from a 173 hectare site (Plate II) shows what this can lead to. There are plans to restore the landscape of the area after 1990, when the concession expires, and to make it suitable for open air recreation (see more about this form of mineral extraction in Section I.2.2.: Struggle for the Margraten Plateau).

Vegetation, agriculture and landscape

South Limburg can be divided roughly into three parts:

1 – the valley of the Meuse in the west;

2 – the two former coal-mining districts in the north;

3 – the relatively elevated plateau landscape in the south (fig. 3).

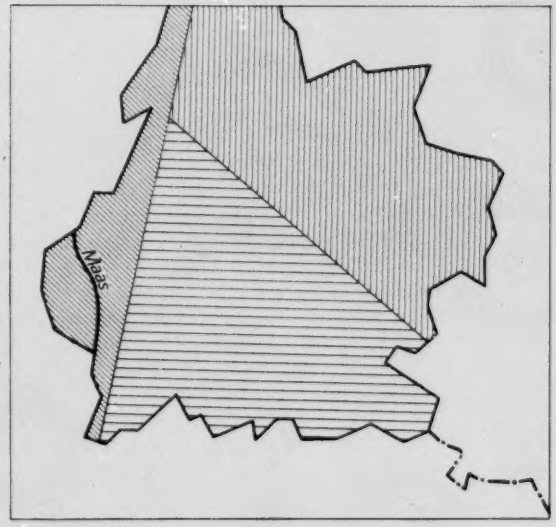


fig. 3 – Landscapes of South Limburg.

In areas 1 and 2 the landscape is greatly affected by mining and industry, urbanisation and traffic. Large parts of area 3 still present the old, varied landscape, dominated mainly by agriculture.
Land-use is determined to a considerable degree by the relief. Grassland predominates on the damp valley floors and on the valley slopes where these are liable to erosion. The grassland is sometimes still combined with orchards. Most of the arable land is to be found on the plateau. The loess deposits laid down by the wind during the post-Glacial period, which cover large parts of South Limburg, form very good soils for agriculture.
Where the valley slopes are too steep even for grassland one finds the woodland hangers which are so characteristic of South Limburg. Woodland also occurs on the less fertile plateaux, such as that between Epen and Vaals in the south east. This variation in land-use and the varying relief, together with picturesque villages and old farms, has given rise to a landscape which has a great attraction for the Dutch tourist. Reference has already been made to the large number of hotels and camping sites in the region.

Moreover, tourist routes have been signposted, country parks established, swimming pools constructed, holiday homes built etc. In nature protection circles, in particular, the fear exists that, because of the great recreational pressure on the region, the landscape will suffer irreparable damage in many places. An impression of the great value which is attached to the natural environment of South Limburg may be gained from the recently published map of the "Evaluation of the Natural Environment" in the Scientific Atlas of the Netherlands.
The most southerly portion, in particular, – the "Mergelland" (Marl Land) – scores almost wholly in the two highest categories: areas with natural elements of national significance 'almost everywhere' and 'in large parts', respectively. (fig. 4).

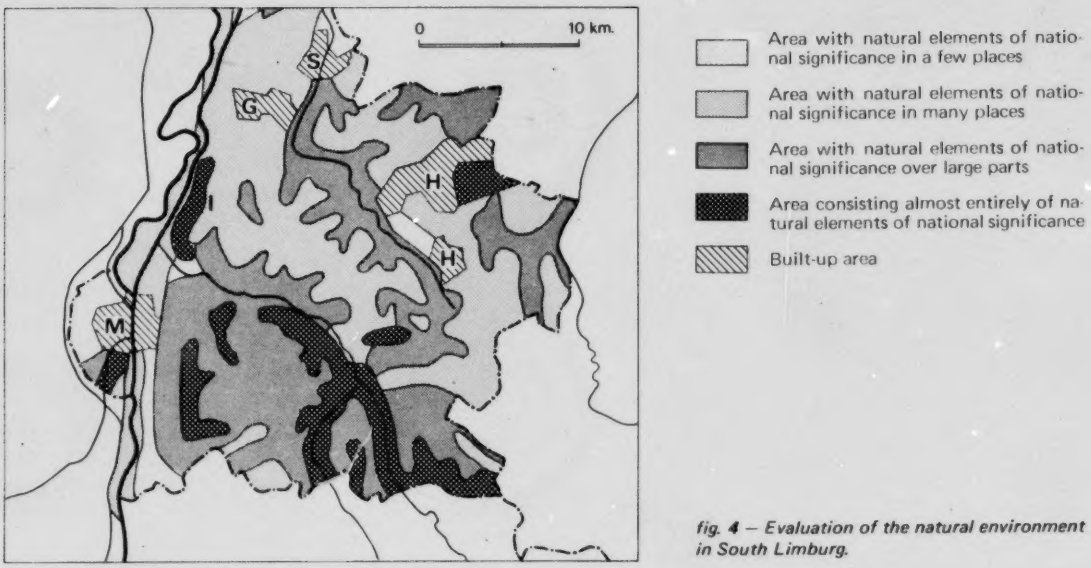


fig. 4 – Evaluation of the natural environment in South Limburg.

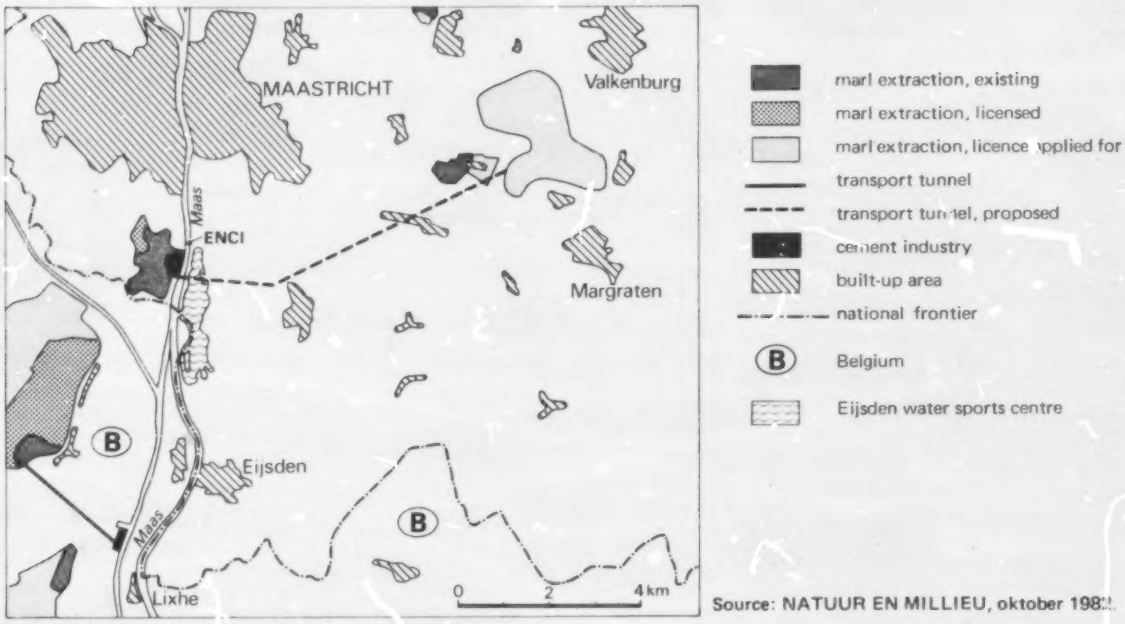
The Structure Scheme for Nature and Landscape Conservation published by the government in 1981 designates the South Limburg Plateau as one of the potential "national landscapes". If the scheme goes ahead, policy will aim to maintain the ecological, cultural and historical and landscape values of the areas in question and particularly the relationship between them while, in addition, the possibilities for extensive forms of open air recreation will be developed.

I.2.2. Struggle for the Margraten Plateau

The background

The First Netherlands Cement Industry (ENCI) began extracting and processing marl to the south of Maastricht in 1928. The concession in question was a 173 hectare site on high ground on the left bank of the Meuse. A large part of this site has now been dug away (Plate II, p. 9). The rock which is quarried here – the 'Maastricht chalk' – is very suitable for cement production because of its high lime content (90% or more), so that it should really be called limestone rather than the generally accepted 'marl'. The ENCI was established entirely with foreign capital (Belgian and Swiss) and has a parent company situated a few kilometres over the Belgian frontier south of Maastricht (cement factory at Lixhe, see fig. 5). Three quarters of the production of the ENCI St. Pietersberg plant consists of Portland cement and one quarter of slag cement. In two ancillary plants, one near the blast furnaces at IJmuiden and one at Rozenburg in Rotterdam, exclusively slag cement is manufactured. Total annual production is more than 3 millions tons (1981), which is about 65% of the Netherlands' requirements. This requires 3.2 million tons of marl (c. 1.9 million cubic metres), 2.1 million tons of which now comes from the St. Pietersberg and the remainder from Lixhe.

The ENCI concession in the St. Pietersberg area expires in 1991 and the firm therefore applied in 1976 to the Provincial Executive of Limburg for a new concession of 433 hectares on the Margraten Plateau for a period of 40 years (fig. 5).



Source: NATUUR EN MILLIEU, oktober 1981

fig. 5 – Marl extraction and cement production in South Limburg and the bordering part of Belgium.

The site in question is a rural area with a few small villages and is largely used for arable and livestock farming and fruit growing. The ENCI wishes to remove the marl in four stages, each consisting of an area of 100 hectares, to a depth of 35 metres below the present ground level, i.e. to just above the average groundwater table. The landscape would subsequently be restored and about half of it would be reclaimed for agriculture. Trees could be planted on the slopes which would be created. To cover the eight kilometres distance to the works (adjoining the St. Pietersberg and favourably situated for water transport on the River Meuse) the idea has been proposed of transport by conveyor belt through a tunnel specially constructed for the purpose.

The Provincial Executive exceeded the period laid down for responding to the application for a concession, so that the application had to be regarded as having been officially refused. The ENCI appealed to the Crown (= central government) and at the time of writing the result of the appeal is not yet known. The Crown asked the Provincial Executive for advice and, after detailed consultation with many of the parties concerned, the province published a report in June 1978 which was favourable towards the application.
The report, however, contains a number of important conditions:

- the concession should cover not 433, but 351 hectares and should run for 20 instead of 40 years, but with a possibility of extension;
- the ENCI must guarantee at least 750 jobs during these 20 years (either in marl quarrying or elsewhere);
- no more than 30 hectares may be excavated at any one time (in contrast to the 100 hectares applied for);
- two supervisory committees must be set up to deal with the social support of the local population and the replanning of the areas, respectively;
- the quarried material must be processed in the Netherlands;
- no processing plant may be built in the area of the concession;
- transport to the works by the St. Pietersberg must take place underground;
- the province should receive a fee for each ton of marl quarried.

Photograph III – *Mass protest demonstration against the granting of a concession to quarry marl on the Margraten Plateau, 20th May 1978.*

Particularly during the period around the publication of the report there was fierce discussion of the application, culminating in a massive protest demonstration in May 1978 (Plate III). The most important arguments for and against the granting of the concession were as follows.

FOR excavation –

The ENCI put forward employment as its most important argument. If the concession is not granted 900 jobs will be lost as a result of the closure of the plant (and a further 450 jobs indirectly in supply and transport businesses etc.). In view of the fact that unemployment in South Limburg is more than twice the national average, the Provincial Executive felt obliged to make a positive recommendation of the report to the Minister on the basis of this argument. To this point of mainly regional concern the ENCI added the national arguments that a significant Dutch cement industry gives central government a means of controlling cement prices and, thereby, building costs in general, while the need not to have to import marl or cement has a favourable effect on the balance of trade.
From the point of view of the economics of the industry, according to the ENCI, it is necessary in the short term to be certain about raw material supplies for the next few decades. The high investments in this capital intensive industry make it necessary to pursue such a long-term policy.

AGAINST excavation –

Nature protection organisations, in particular, at the local, regional and national levels argue on many grounds that the concession should *not* be granted. The following are their most important arguments:

– An important natural and cultural landscape will be lost in an area which also contains good agricultural land. The fact that the government would be granting a concession for large-scale excavation in an area which has been designated by the same government as a potential National Landscape constitutes an unacceptable contradiction.

11 14

- Excavation to more than 35 metres below the present ground level may cause radical changes in the hydrological balance, the effects of which will be felt well outside the area concerned –for example, in the valuable woodland hangers along the valley sides on the edges of the plateau; much research still requires to be done into these effects.
- In granting this concession, jobs would be lost in agriculture and tourism, among other sectors. The loss has been estimated by opponents of the concession at 800 jobs directly and indirectly affected, and by the ENCI at 50 jobs directly affected.
- Because of the decline of population growth in the Netherlands and the stagnation in economic growth – and thereby of the demand for building – consumption of cement in the Netherlands, after trebling between 1950 and 1977, has now stabilised. A fall in consumption in the near future is not improbable. The ENCI, and the cement industries in Belgium and Germany, are already having to deal with the consequences of over-capacity.
- Because of continuing mechanisation and automation the number of people employed by the ENCI will decline in the next few years, which means that it will be extremely difficult, if not impossible to guarantee permanently the 750 jobs referred to in the provincial executive conditions.
- There are growing possibilities for the use of alternative raw materials in cement manufacture, such as mud dredged from the ports, building rubble, blast furnace slag and power station fly ash.

The ENCI is already employing two methods for economising in marl in the manufacture of cement. If these production methods are employed on a large scale, existing marl reserves could last considerably longer than was believed until recently.

In conclusion –

There is pressure from many sides to study a number of aspects in greater detail before a final decision is taken: they include the consequences for employment and the environment, and the search for alternative materials and forms of extraction. It has already been shown, for example, that if the ENCI could obtain permission to remove marl at a greater depth (i.e. below the water table) in the St. Pietersberg area, the plant would certainly be assured of raw materials until 2000. This possibility also exists at the Eijsden Water Sports Centre, a large lake on the right bank of the Meuse, created by gravel extraction. In view of the short distance from the ENCI works, this could form a favourable alternative (cf. fig. 5). According to the ENCI, the disadvantages are that the marl there is of an inferior quality (it is the 'Gulpen chalk', with a lower lime content) and, because of the moisture content, it is more difficult (i.e. expensive) to process. Moreover, the size of the reserve is much less than that in the Margraten Plateau concession.

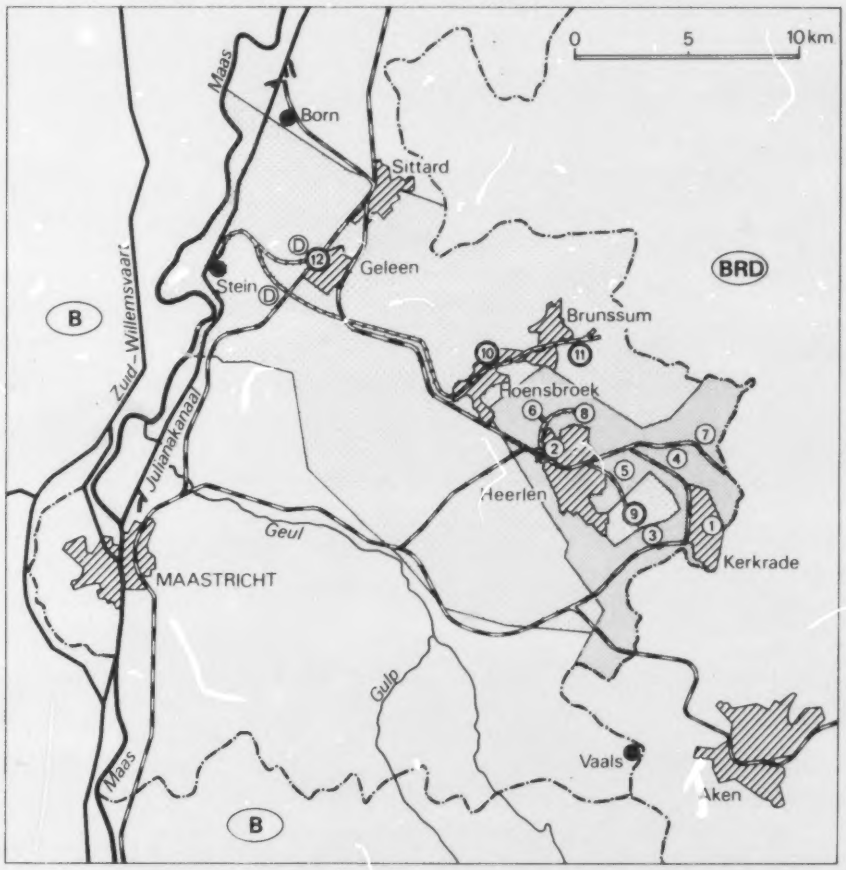
The ENCI is therefore persisting with its application for the Margraten Plateau concession. According to the firm, the concession affects only 4% of the area of the plateau and 2.5% of the proposed National Landscape. Moreover, it does not affect the most attractive parts of the landscape, i.e. those most visited by tourists. Finally, according to the firm, experience with a part of the St. Pietersberg has already shown that restoration of a marl pit can result in the creation of a very acceptable landscape. The opponents argue in reply that the disadvantageous effects of excavation on the Margraten Plateau will extend much farther than the 433 hectares of the concession (dust and noise nuisance, traffic etc.), that attractive natural and cultural landscapes in this most densely-populated part of Europe must be protected, if at all possible, and that, in any event, no concession may be granted before exhaustive studies have been made both of the consequences of proposed excavation and of all the possible alternatives.

I.3. Coal mining and restructuring

I.3.1. Development of coal mining

History

In spite of the fact that shallow coal seams were being operated at a few places in South Limburg in the Middle Ages, coal mining as such began relatively late here (with the exception of the Domain Mine at Kerkrade, which dates from the 18th century).



State mines concession area
private mines concession area
built-up area
Private mines
① Domaniale mijn 1723 - 1969
② Oranje Nassau I 1899 - 1974
③ Willem - Sophia 1902 - 1970
④ Laura 1905 - 1974
⑤ Oranje Nassau II 1907 - 1971
⑥ Oranje Nassau III 1917 - 1974
⑦ Julia 1927 - 1970
⑧ Oranje Nassau IV 1928 - 1974
Ⓓ DSM-chemie

lines of Netherlands railways
mine railways
State mines
⑨ Wilhelmina 1906 - 1969
⑩ Emma 1913 - 1973
⑪ Hendrik 1916 - 1967
⑫ Maurits 1925 - 1967

fig. 6 – Former coal mining in South Limburg.

During the first half of the 19th century, when other West European countries were already in the grip of the Industrial Revolution, there was as yet no interest in the Netherlands for South Limburg coal. Manufacturing industry was concentrated around the ports in the west of the country, from where South Limburg appeared a remote and inaccessible area. Navigation was difficult on the Meuse and the railways had not yet been constructed. It was easier and cheaper to import coal by water from Britain and Belgium. There was little interest in investment in coal mining; the capitalists in the west were more interested in the plantations in the East Indies (Indonesia).

Once coal mining finally got underway in the second half of the last century, it was initially funded by foreign capital. A number of companies were set up and eventually they exploited a total of eight mines (see fig. 6). At the beginning of the 20th century the State also began to show an interest in coal mining as a result of encouragement by, among others, Minister Cornelis Lely (best known as the 'father' of the plan to enclose and partially drain the Zuyder Zee).

In 1906 the first State-owned mine came into operation, the 'Wilhelmina', east of Heerlen, and was followed within twenty years by the 'Emma', the 'Hendrik' and the 'Maurits' (fig. 6). At the end of the 19th century the rail links with the rest of the Netherlands had been completed and water transport was considerably improved by the construction of a number of weirs in the Meuse, the completion of the Juliana Canal in 1934 and the Maas-Waal Canal near Nijmegen in 1929. In South Limburg a 40 kilometre network of mineral railways was constructed, linking up with the network of Netherlands Railways and the coal port of Stein on the Juliana Canal (fig. 6). In this way South Limburg rapidly developed into a distinct mining district, where, when the mines were at the height of their prosperity, some 58,000 miners, including many foreigners, were responsible for a total annual production of 13 million tons of coal.

Eastern and western mining districts

Of the twelve coal mines in South Limburg eleven were concentrated in the area around Hoensbroek, Heerlen and Kerkrade, known as the Eastern Mine District; only one mine was situated in the west, the State-owned Maurits mine, near Geleen (fig. 6). There was evidently originally a preference for the eastern area, which can be explained both from the situation and the composition of the coal seams.

Under the whole of South Limburg the Carboniferous strata lie below a cover of sand, clay, marl, lignite etc. The thickness of this cover varies from a few tens of metres in the east to hundreds of metres in the west. In the Eastern Mine District, therefore, the coal lies closer to the surface. Moreover, the older coal seams are reached sooner here, because the younger strata in this more elevated area have been the most eroded in the periods succeeding the Carboniferous. At the beginning, in particular, the old coal with a very high carbon content (including anthracite) was the most valuable. Not until all the concessions in the Eastern Mine District had been granted was the more westerly State-owned Maurits mine sunk in the 1920s, in order to exploit the relatively young coal ('fat coal') which lay at a great depth. *) The interest in this kind of coal had meanwhile considerably increased as a result of the development of the chemical industry, which used the gas derived from the bituminous (fat) coal as a fuel and raw material. This gas was also fed to the public supply throughout the whole of the South Netherlands.

The situation described amounts for the different ways the Eastern and Western Mine Districts have developed in the past few years. In the Western District extensive processing industry developed around the Maurits mine, including a caprolactam (nylon) plant, a nitrogen fixing plant (artificial fertilisers) and a polychemical plant (raw materials for plastics, paints and varnishes, medicines etc.; Plate IV). All these plants are operated by the State-owned DSM (Dutch State Mines). Many of the processes employed here have been developed in DSM's own large laboratory and constitute an important export product.
The Eastern Mine District has continued to concentrate much more on the mining of coal, so that the consequences of the coal crisis are much more serious there (Section I.3.2.).

*) The lowest level of the Maurits mine was at a depth of 860 metres. The deepest shaft of all the South Limburg mines was a shaft of the State-owned Hendrik mine, reaching to a depth of 1058 metres.

Photograph IV – *DSM works at Geleen. Left – the Kerensheide motorway intersection. Behind, to the right, the Nitrogen Plant around the open site of what was once the State-owned Maurits mine. In the foreground is the Polychemical plant. The circular complex at the bottom of the photograph is a shopping centre (looking north).*

In 1963, the last year in which all twelve Dutch coal mines operated independently (thereafter a number were combined), 25,000 underground miners were responsible for the production of 11.5 million tons of coal (Table 2).

Table 2 – Production and number of miners in Dutch coal mines, 1963

	Net production, tons x 100	No. of underground workers
State mines		
Wilhelmina	1054	2314
Emma	2415	4729
Hendrik	1321	2551
Maurits	2134	5015
Private mines		
Oranje-Nassau I	586	1327
Oranje-Nassau II	630	1234
Oranje-Nassau III	810	1717
Oranje-Nassau IV	329	741
Laura	440	1156
Julia	785	1654
Domain Mine	573	1635
Willem-Sophia	432	1102
Total	11,509	25,320
Total surface workers		22,655
Total mineworkers		47,975

Source: Geologie en Mijnbouw, 1971.

I.3.2. Coal crisis

Between 1967 and 1975 production came to an end in all the coal mines of South Limburg, despite the fact that the reserves were certainly sufficient for another hundred years and that the Dutch mines were among the newest, safest and most modern-equipped in Europa. A number of partly interrelated factors were responsible for this change of fortune:

- the availability of alternative fuels, such as petroleum (which was becoming increasingly cheap at that time) and natural gas, which was discovered in vast quantities in the North, particularly after 1960. In a short time great shifts occured in the consumption of energy in the Netherlands (Table 3).

Table 3 – Energy consumption by energy sources, in %

	1950	1960	1965	1970	1975	1980
Coal	78	51	30	10	4	6
Petroleum	22	48	66	55	34	44
Natural gas	0	1	4	35	60	46
Other	0	0	0	0	2	4

- the import of cheap coal from the United States and elsewhere: the low price was made possible by open-cast mining and cheap transport with bulk carriers (see also the final point of Section III.4., p. 52).
- relatively high production costs of Dutch coal:
  - the high costs arose from the great depth and thinness of the coal seams,
  - high wages: the wages of the Limburg miners were 20% higher than those of their counterparts in the metal industry and wage costs accounted for about two thirds of production costs.

The combination of these factors, not all of which could be foreseen, led to the mines being closed very suddenly. Even at the beginning of the 1960s the European Coal and Steel Community (ECSC) still foresaw great coal shortages for Europe in the near future. The Netherlands made great efforts to conclude long-term contracts for the import of cheap coal and even began to sink a new mine, the State-owned Beatrix mine near Roermond. Beginning in 1958, two shafts were sunk to a depth of more than 500 metres. Work was halted in 1962 and in 1965 the government published the first "Report on the mining industry and the industrial restructuring of Limburg" which announced that the Maurits mine was to close as a first step (1967), after which the other mines would also cease production at regular intervals. Within ten years Dutch coal mining was entirely a thing of the past; the years in which the twelve mines closed are given in fig. 6.

Apart from economic problems, which are dealt with in the next section, the rapid closure of the mines also gave rise to social and psychological difficulties and had a particularly serious effect in the Eastern Mine District, where half of the economically active population was directly employed in the mines. The miners lost their jobs and also link with an industry which had dominated their lives and those of their families in many respects (social facilities, leisure activities etc.). Moreover, at the same time the influence of the Church was waning greatly in this predominantly Roman Catholic area. Together with premature retirement or re-training for other work, increased commuting to West Germany or migration to other parts of the country, all these developments meant radical changes in the lives of many residents of South Limburg.

I.3.3. Restructuring

It would have been technically feasible to close all the mines within five years, but the First Mine Report expressly stated that the rate of closure should be adjusted to the availability of new jobs. During the first few years developments on the labour market were so favourable that the programme could be carried out at an accelerated rate. Nationally and internationally it was still a time of economic boom. Many new jobs were available in the Netherlands and elsewhere in manufacturing, construction and services so that the labour market in South Limburg was fully stretched.

During this period foreign labour still had to be attracted to work in the mines, principally because many miners were already looking for new jobs elsewhere before their mine closed down. Many also took advantage of the arrangements for early retirement, while others took part in retraining programmes. In both instances use was made of financial arrangements of the ECSC.

Nevertheless, the situation around 1970 appeared more favourable than it actually was. Many ex-miners had found well-paid work across the frontier in West Germany and commuted every day or every week. The great fear was that, in less prosperous economic times – which soon arrived – they would be forced back on to the South Limburg labour market. It became clear that the government had to concern itself to a greater extent than it had done previously with the economic development of South Limburg. In 1969 the region appeared for the first time in the plans relating to regional socio-economic policy as a "Restructuring Region". Grant provisions made it possible for firms to obtain up to a 40% subsidy from the government for new investment. Subsidies were also available for the extension of existing enterprises.

In the Eastern Mine District a number of relatively smaller, new establishments benefited from these measures, while in the Western Mine District it was mainly DSM which took advantage of them to expand its large chemical industry. Petroleum and natural gas have now replaced coal gas as the industry's source of energy.

In total, however, only about 8% of the former miners have found jobs in these subsidised industries. A special case in the Western Mine District was formed by DAF, the Dutch car firm which had its headquarters at Eindhoven. The announcement of a new DAF factory to produce private cars coincided with the publication of the first Mine Closure Report. The factory was built in the late 1960s at Born on the Juliana Canal with financial assistance from DSM, among others, but the ex-miners showed so little interest that it had to be kept going with the help of Belgian commuters and workers from the Mediterranean countries. In 1974 the plant, which was then employing about half of the 6,000 workers originally planned, became part of the Swedish VOLVO concern. It now employs about 5,500 workers and, thanks to financial injections from the Swedish parent concern and the Dutch government, the worst problems appear to have been ironed out.

Initially the restructuring policy was strongly oriented towards manufacturing industry, perhaps too strongly, because there is also a need for new jobs in the services sector. The government is helping to fill this gap by transferring a number of large departments from the west to South Limburg. The General Public Servants Pension Fund has been set up in Heerlen (initially with about 2,000 jobs) as has part of the Central Bureau for Statistics (the latter on the site of a former mine and providing about 1,000 jobs; see Plates VI and VII, p. 26). The total number of jobs provided by these government departments may be as high as 6 or 7,000. Since, generally, not more than 30 to 40% of the civil servants concerned move with their departments, the transfers mean an important stimulus for the regional labour market.

The relocation of a number of international military establishments (including AFCENT, *) a section of NATO, in Brunssum), the opening of a Medical Faculty in Maastricht (as the first stage towards a fourth State University), the establishment of an 'Open University' and of a teacher training college are intended to achieve the same end. Regional purchasing power has also markedly increased, thanks to these new developments.

The absorption of the 45,000 workers who were still employed in the mines in 1965 generally did not cause any great problems, thanks to natural wastage, migration, retraining, etc., but for those people looking for work in South Limburg after the mine closures the situation was not very hopeful. Several of the newly-established enterprises, which often had little capital behind them and therefore had to take advantage of the generous grants, were forced to close, so that a number of ex-miners found themselves without jobs for the second time within a few years. Large concerns such as DSM preferred to see a reduction rather than an increase in their work-force, while fewer jobs were available to commuters in Germany.

At present, therefore, the economic situation in South Limburg is still giving cause for concern. The unemployment rate is more than double the national average (Table 4).

The LIOF Industrial Bank, which was set up in 1975 by central government, the province, municipalities and chambers of commerce, is trying to encourage firms to relocate in Limburg by means of national advertising

*) Allied Forces Central Europe.

Table 4 – Unemployment in the Netherlands and South Limburg, annual averages 1978 and 1980

	Netherlands		South Limburg	
	1978	1980	1978	1980
Unemployed as % of economically active population (exc. self-employed)	5.1	5.9	10.0	11.0
% younger than 19 years of age	12.6	13.5	13.4	13.4

Sources: CBS and ETI-Limburg

campaigns emphasizing the favourable location in Europe ("Wedge in Europe"), the investment facilities and more favourable situation in respect of infrastructure and building sites in comparison with the Randstad (fig. 7). The LIOF also provides financial assistance to firms wishing to set up in South Limburg or to expand their activities there.

fig. 7 – Part of a newspaper advertisement by the LIOF industrial bank, with the text "Limburg, Dutch wedge into Europe".

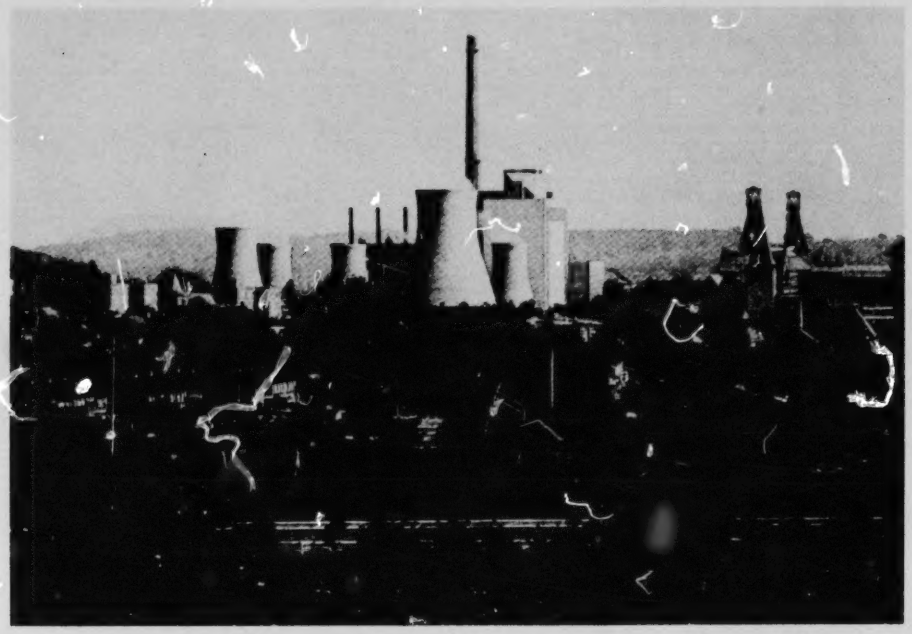
As long as there is no radical improvement in the economic situation in the western world, however, South Limburg will continue to have a difficult time. During the past few years government policy for improving the situation in South Limburg has covered a broader field than the exclusively economic policy of the early 1970s – a policy which was oriented, moreover, mainly towards industrialisation. In the South Limburg Perspectives Report, published in 1977, a comprehensive policy was proposed, embracing socio-economic and social and cultural developments as well as town and country planning.

I.3.4. The Eastern Mine District – a problem area, in words, figures, maps and pictures

In this part of South Limburg, situated around the urban centres of Heerlen and Kerkrade, the problems have always been greater than in South Limburg as a whole. The reasons for this can be briefly stated:

- the one-sided orientation towards coalmining; there was little manufacturing and, particularly, little employment in the services sector. In 1965 the mines provided 36% of the jobs in the Eastern Mine District, compared with 16% in the Western Mine District;
- the somewhat later date of the mine closure operation in comparison with the Western Mine District (largely after 1970), i.e. during a period of incipient economic recession;
- the less favourable location in relation to communications, particularly to north-south traffic such as the Juliana Canal and the A2/E9 motorway (Liege–Maastricht–Eindhoven);
- the disjointed and inadequate road network, which can be blamed on the one-sided orientation towards the production of coal, which was transported mainly by rail;

– the chaotic structure, which arose during the first half of the present century from the un-coordinated building of housing areas, roads, businesses, etc. around the eleven pitheads (Plate V).



Photograph V — *Charateristic view of the Eastern Mine District before the closure of the mines: miners' housing grouped around the mine, in this instance, the privately-owned Julia mine in Eygelshoven (photograph from the 1960's).*

The economic structure in this area has undergone very radical changes. Partly because of the establishment of international military facilities and of central government offices, the tertiary sector now provides the bulk of employment here (as compared with manufacturing in the Western Mine District), but unemployment is also proportionately the greatest here.
During the period of restructuring, employment in the whole of the "Restructuring region" fell by 2%, as opposed to 12% in the Eastern Mine District. During the past few years there have been considerable improvements in the infrastructure, largely because of the construction of the A76/E39, east-west motorway (Antwerp—Heerlen —Aachen) and the road from Maastricht to Heerlen. Town planning measures have drastically changed the appearance of the area in a number of places, notably with the gradual removal of slag heaps adjacent to the former coal mines and the demolition of mine buildings and machinery and the reuse of the sites which have become available in this way. Since 1966 the 'Stadsgewest Oostelijk Mijngebied' (Eastern Mine District Urban Authority), cooperative body for the urban municipalities of Brunssum, Hoensbroek, Heerlen, Kerkrade etc. has dealt with town and country planning in approximately half of the area of the Eastern Mine District. Cooperation between municipalities takes place in the fields of physical planning — the region is regarded as a single large urban area — and in local government. *)

Town planning in the Eastern Mine District faces a number of specific problems arising from the mining history of the region:

– there was little structure in the urban development; the location of housing was determined mainly by the location of the mines.

– the majority of the settlements were small villages at the beginning of this century; there were no old, long-established urban centres.

*) The number of municipalities in the Eastern Mine District has been reduced from 51 to 23 with effect from 1 January 1982, as part of the municipal reorganisation of South Limburg.

– within a short time a total area of 750 hectares of former mining sites became available for new uses.

The remainder of this section deals with aspects of the above – though not claiming to be exhaustive – with the aid of figures, maps and photographs.

In figures: changes in the occupational structure

The boundary of the Eastern Mine District used here is that employed by the CBS in its division of the Netherlands into 129 Economic Geographical Regions. South Limburg is made up of four such regions (fig. 8); figures relating to the area, population and population density of each region are given in Table 5:

124 – Western Mine District
125 – Eastern Mine District
126 – Maastricht
127 – South Limburg remainder

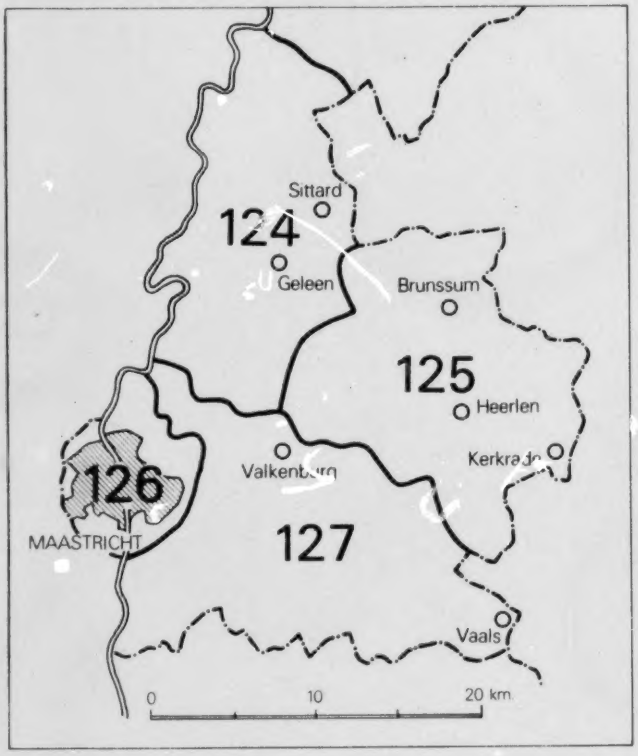


fig. 8 – Economic-Geographic Regions in South Limburg.

Table 5 – Area, population and population density of the Economic Geographic Regions in South Limburg at 1 January 1981.

	Area in sq km	Population	Population density per sq km
EASTERN MINE DISTRICT	**209**	**266,978**	**1277**
Western Mine District	191	164,488	861
Maastricht	59	110,232	1868
Rem. S. Limburg	230	79,732	347
SOUTH LIMBURG	*689*	*621,430*	*902*

Source: Population of the Netherlands Municipalities on 1 January 1981; CBS

A comparison of the occupational structure in the two mine districts in 1965, 1973 and 1980 (Table 6) shows that the changes resulting from the coal crisis were much more radical in the Eastern Mine District than in the Western Mine District.

Table 6 – Occupational structure in the Eastern and Western Mine Districts in 1965, 1973 and 1980 (in %)*)

	Western Mine District			Eastern Mine District		
	1965	1973	1980	1965	1973	1980
Agriculture	3.9	2.2	1.9	3.0	2.0	2.2
Mineral Extraction	15.8	--	0.1	36.2	7.6	0.2
Other industry	54.2	58.0	54.4	24.1	32.8	33.2
Services	26.1	39.7	43.6	36.7	57.6	64.4
Total Economically Active Population (absolute)	53,150	50,600	53,500	101,600	92,850	94,150

*) Because the figures in the table for the three years are from different sources, they are not wholly comparable from the purely statistical point of view.

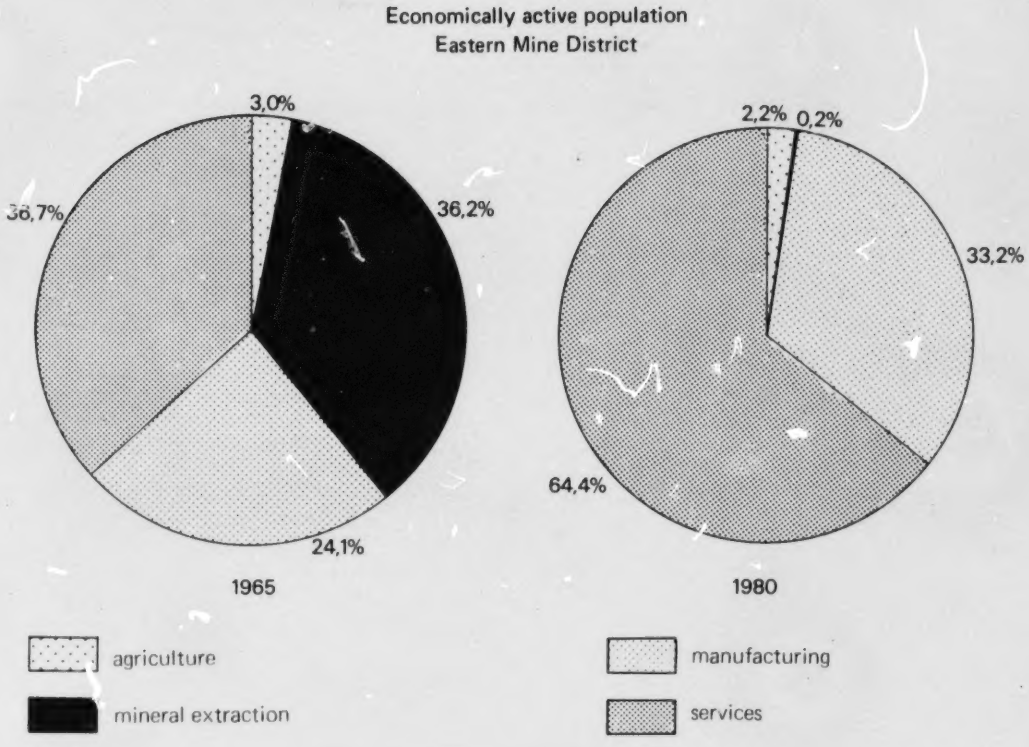


fig. 9 – Breakdown of the economically active population in the Eastern Mine District in 1965 and 1980. The size of the circles is proportionate to the total size of the economically active population in the two years concerned (cf. tabel 6).

The changes in the Eastern Mine District between 1965 and 1980 are given in the form of piegraphs in fig. 9, where the size of the circles is proportionate to the total size of the economically active population.

In maps: changes in the traffic infrastructure

A comparison of the road network in the Eastern Mine District in 1956 with that of 1980 (figs. 10 and 11) reveals the following important changes:

- the size of the urban areas has greatly increased in 25 years; the mines have disappeared and large industrial sites have been constructed.
- in 1956 the Eastern Mine District had only one major traffic artery – the main road from Sittard to Heerlen and Aachen. Motorways – i.e. roads with separated carriageways – did not exist at all, with the sole exception of the road west of Heerlen running towards Geleen and forming part of the as yet uncompleted Antwerp–Aachen motorway. Now a motorway runs to the west of the NW-SE road link connecting with the German Autobahn network north of Aachen, and with the Belgian national road network west of Geleen. The Heerlen agglomeration is served by a motorway running parallel to this, while the new Maastricht Motorway has been constructed at right angles to it.
- Also noteworthy is the increased accessibility of the most easterly part of the Eastern Mine District, which in 1956 possessed no more than a few subsidiary roads. Here, too, the beginnings of a main NW-SE axis are visible.
- the road network as it now exists shows a marked main orientation. The number of links at right angles to this, however, i.e. from SW to NE, still leaves much to be desired.

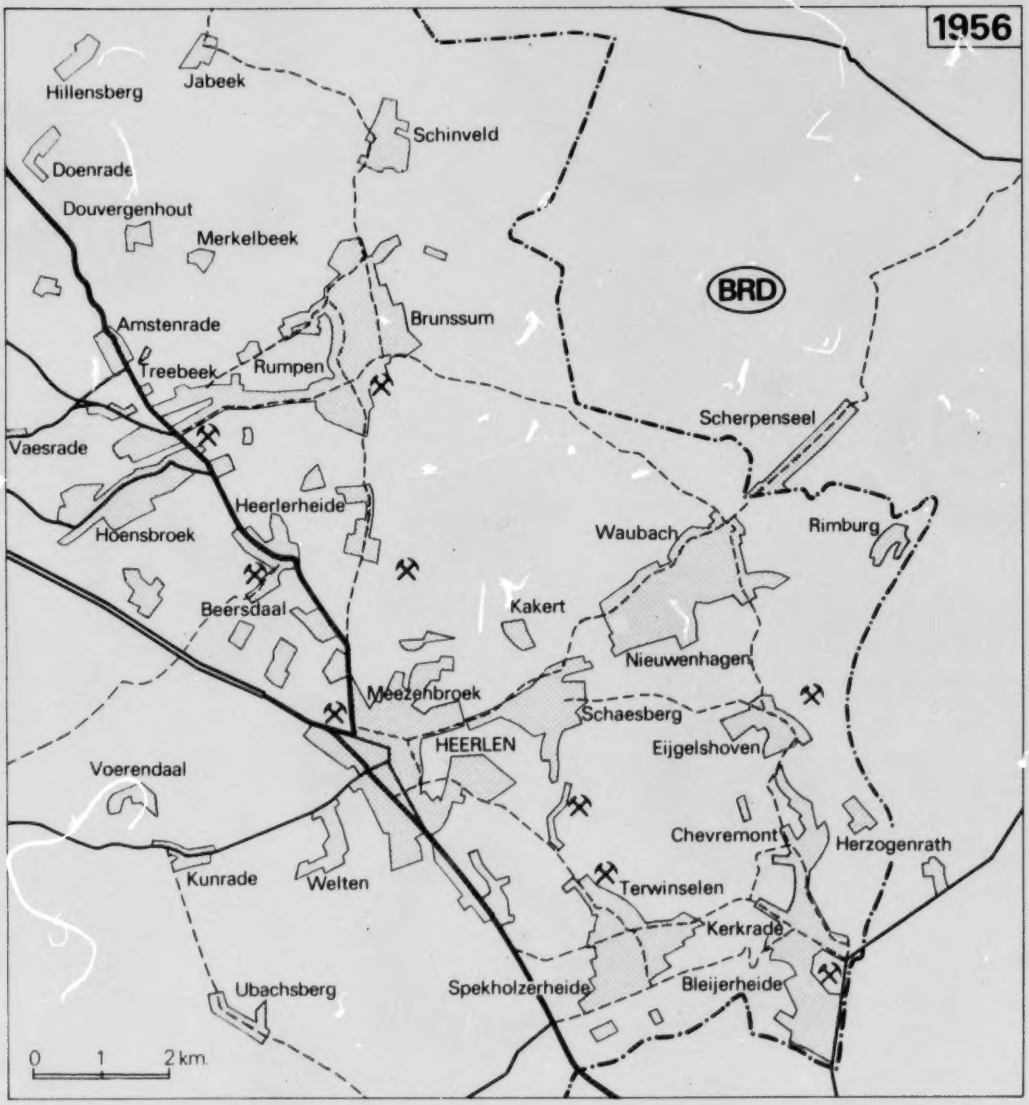


fig. 10 – Road network in the Eastern Mine District in 1956.

*In pictures: reuse of a mining site *)*

In the Eastern Mine District, where eleven of the twelve Dutch coal mines were situated, a total of 750 hectares of land were used for surface work. Within the town planning framework of the area, the majority of sites have been allocated a new use, for instance as recreational areas, residential areas, sites for new industries or offices. The costs of this redevelopment are borne largely by the State. Plates VI and VII give an example of such redevelopment.

Plate VI shows the surface plant of the Oranje Nassau I private mine at Heerlen in about 1970, when the mine was still in full operation. After the mine closed in 1974 the surface buildings were demolished.

*) In writing this section use has been made, *inter alia* of the article by M. Gramm: "Die EUREGIO Maas-Rhein in Luftbild XI" in "EUREGIO-Informationen und Materialien zur Geographie" Nr. 9; Aachen, 1981.

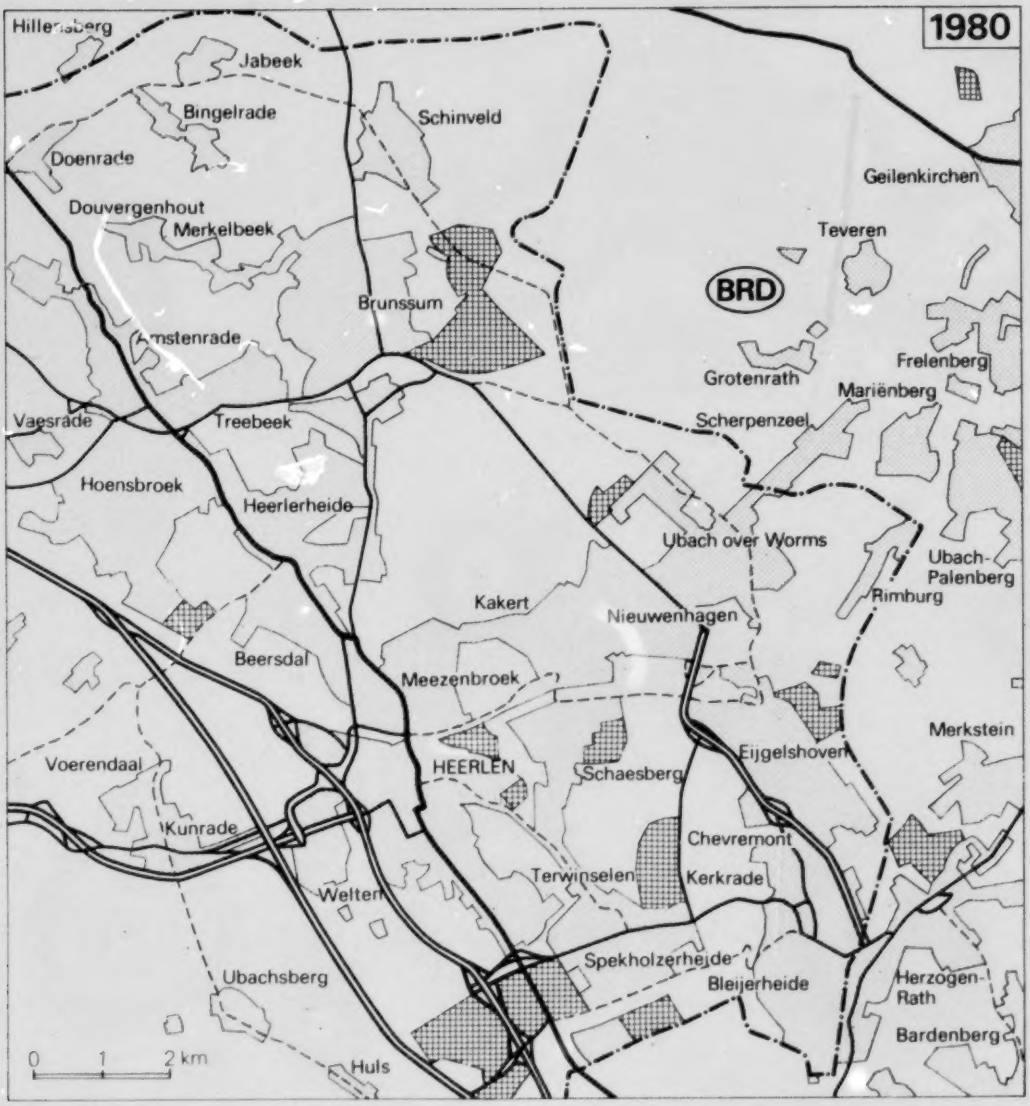
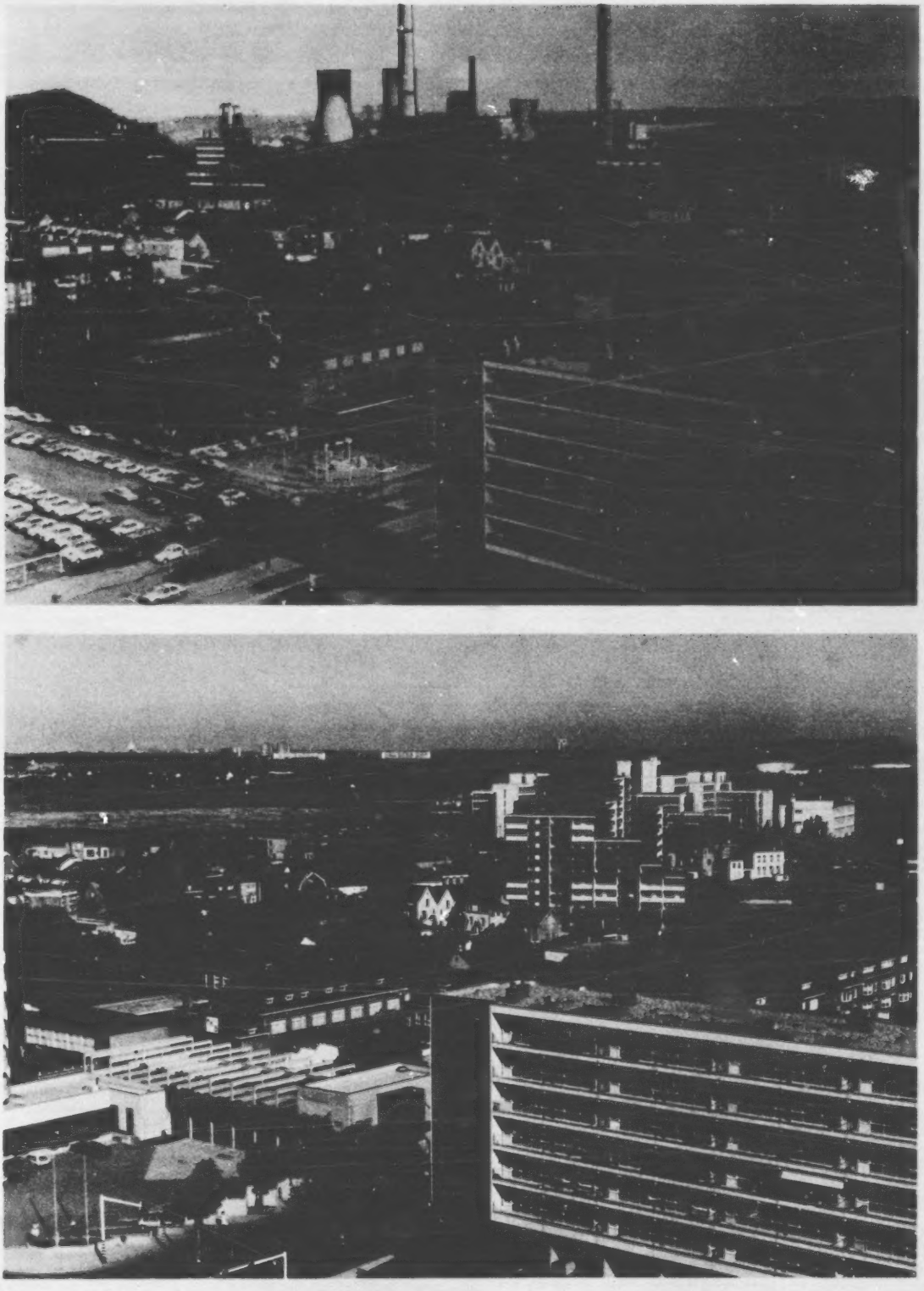


fig. 11 – Road network in the Eastern Mine District in 1980.
(key applies to figs. 10 and 11)

The building housing the head office – the white building at the top right of the photograph – was spared, as were one of the head-stocks and the adjoining engine house (Plate X, p. 37). These installations have been restored and preserved as 'mining monuments'. The most striking feature of the site is now the new office buildings which, since 1979, have accommodated the section of the Central Bureau for Statistics which moved from The Hague to Heerlen. Further extensions of this office complex are planned. At present 1,150 people are employed by the CBS at Heerlen (about one third of the total CBS staff). 95% of them originate from South Limburg.



Photographs VI and VII — *Heerlen before and after the closure of the privately-owned Oranje-Nassau I mine in 1974. In the top photograph the townscape is dominated by the surface installations of the mine. In the bottom photograph the mine and its tip have disappeared; on part of the site the offices of the Central Bureau for Statistics have been erected, while the remainder of the site is still largely unused.*

On other parts of this former mine site some 1700 dwellings have been built and there is also space for a number of smaller commercial enterprises. The remainder of the site will have a recreational use. The whole site is very favourably located from the point of view of communications. Heerlen station is situated just beyond the right-hand edge of the photographs. The Randstad can be reached in 2½ hours by fast train (half-hourly service). Fig. 11 (p. 25) shows that Heerlen now also has good connections with the national motorway network.

A comparable picture is provided by the establishment of the Headquarters of the NATO forces in Central Europe (AFCENT), which is located on the site of the former state-owned Hendrik mine at Brunssum.

I.4. South Limburg as a partner in the Meuse-Rhine EURO REGION

I.4.1. Situation and boundaries

In the introduction to this chapter reference has already been made to the eccentric situation of South Limburg as viewed from the Netherlands. The region is linked with the remainder of the country by only a narrow strip of land. North of Sittard the distance between the Belgian and German frontiers is no more than five kilometres and through this corridor are squeezed a river, a canal, a railway, a motorway and a number of secondary roads. It should be noted here that a road from the Eastern Mine District (Brunssum) to Roermond, crosses German territory for more than five kilometres, but has no customs posts and may therefore be regarded as an internal traffic link between South and Central Limburg (fig 1, p. 6).

The region's present boundaries are the final outcome of an eventful history, in which Limburg – a fragmented feudal territory until the end of the 18th century – did not become part of the Kingdom of the Netherlands, as its eleventh province, untill 1867. The artificial nature of the present frontier emerges very clearly, for example, from a study of the linguistic frontiers in the region surrounding South Limburg (fig. 12).

The boundaries of the areas in which the three major languages (German, French and Dutch) are spoken coincide only slightly with the political frontiers. From the point of view of South Limburg the situation is as follows:

- the western boundary – the Meuse – forms no language frontier at all;
- the eastern boundary forms a more or less fluid language frontier, because very similar dialects are spoken on either side of the frontier;
- to the south there is a very rapid transition to the French language zone. This transition forms a much more tangible socio-cultural barrier than the other language frontiers. In this connection the data relating to the areas serviced by the municipal theatre and the public library of the city of Aachen are interesting.

national frontiers
language boundaries
nl Dutch language area
d German language area
fr French language area
• Places outside Germany with more than 25 season ticket holders at the Stadttheater in Aachen.

fig. 12 – Linguistic frontiers around South Limburg.

They extend across into the Netherlands (Sout-Limburg) and the Dutch and German-speaking parts of Belgium, but not into the French-speaking part of Belgium (fig. 12).

Disagreements about frontier questions, which lasted into the present century, in particular between the Netherlands and Belgium, are still reflected in certain remarkable features of the traffic infrastructure. For example:

- around 1900, when the navigable waterways in both Dutch and Belgian Limburg required improvement in order to serve the coal mining industry, instead of the Meuse being improved for navigation at joint expense, each country constructed a canal on its own territory. In Belgium the Albert Canal runs parallel to the Meuse from Liège to near Maastricht, while in the Netherlands the Juliana Canal covers the 35 kilometres between Maastricht and Maasbracht (fig. 1, p. 6).
- when the rail connection between Antwerp and the Rhine ('der Eiserne Rhein') was constructed around 1840 the route chosen, for the same reasons, was not the lowland line through Dutch Limburg, but the much more difficult one via Liège and Aachen.
- for several decades the road networks of South Limburg and the adjoining parts of Belgium and West Germany scarcely linked up with each other. The internal traffic network – particularly as far as the motorways were concerned – was developed first, and only then was attention turned to the connections with the much closer major cities across national frontiers (Table 7).

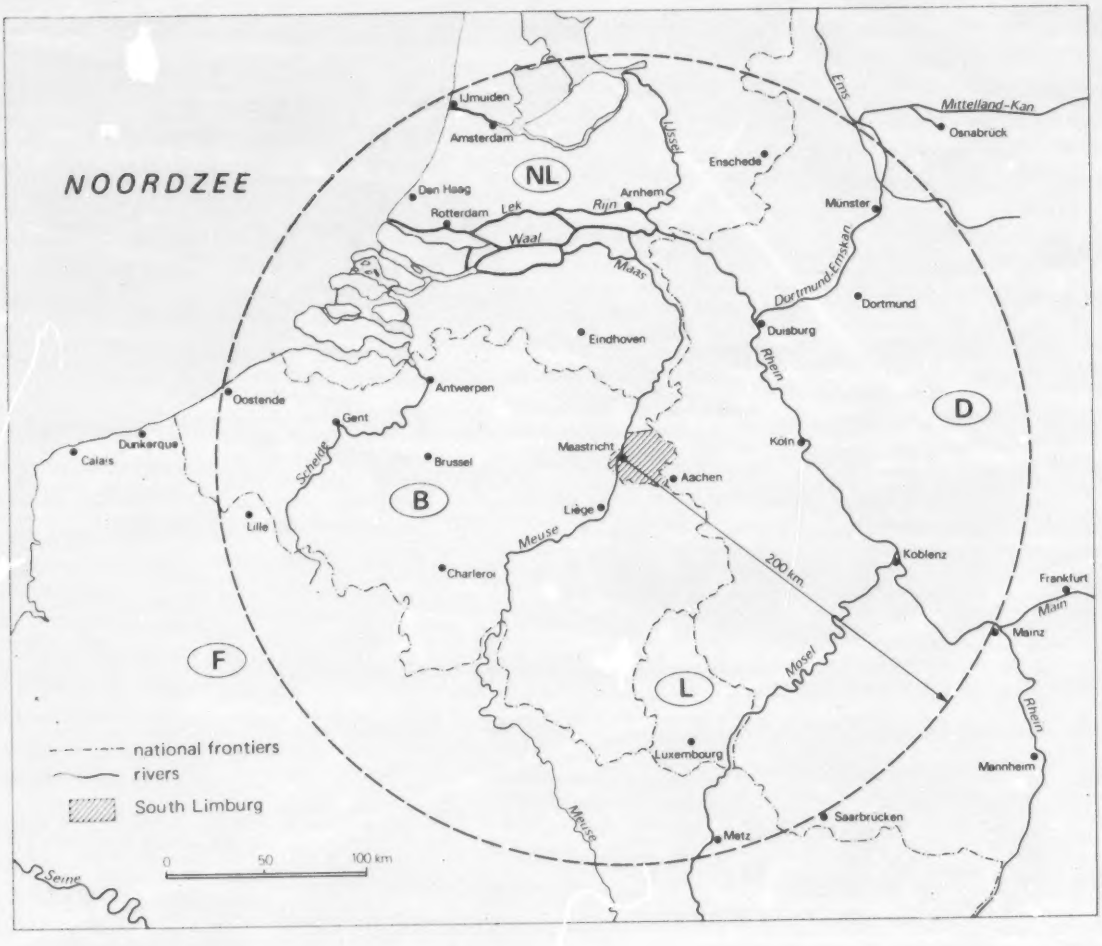


fig. 13 – South Limburg in North West Europe.

Table 7 – Distances by road from Maastricht to major cities in the Netherlands, Belgium and Germany (in km)

Eindhoven	83	Aachen	33	Liège	31
Amsterdam	214	Cologne	76	Brussels	121
The Hague	239	Düsseldorf	110	Antwerp	109

The second and third columns in the table above give an indication of the central location of South Limburg in a European context. Instead of appearing as a peripheral region in the extreme south-east corner of the Netherlands, South Limburg now emerges as a central zone in the middle of North West European cities and industrial regions. If a circle with a 200 kilometre radius is drawn around Maastricht, it passes through or close to Münster, Mainz, Saarbrücken, Metz, Rheims, Lille, Ostend and IJmuiden (fig. 13).

Thanks to the dense motorway network, nearly all these places can be reached within three hours.

At present there is little, if any, large-scale international integration for example in terms of an integrated approach to the structural economic problems of the old mining and industrial areas, although since 1980 there has been a cross-frontier action programme under the auspices of the Ministries of Economic Affairs of the Federal Republic, Belgium and the Netherlands. At a regional level, however, a number of examples of cross-border activities and measures may be noted. Reference has already been made to *cross-border commuting*, which has grown significantly in South Limburg.

The fact that inhabitants of the member states of the European Community are free to choose the country in which they wish to live and/or work has contributed considerably to this, although the volume of movement has decreased in the past few years because of the less favourable economic situation (Table 8).

Table 8 – Inward and outward commuting in South Limburg in 1972 and 1980

		1972	1980
Belgium	inward	6649	4634
	outward	711	989
	net movement	+ 5938	+ 3645
West Germany	inward	321	434
	outward	11243	6122
	net movement	– 10922	– 5688

Source: CBS

The commuting arises in part not only from the fact that workers looked for jobs across the border, but also because people went to live in the neighbouring country. There are Dutch people, for example, who have continued to work in the Netherlands, but have gone to live in Belgium, and Germans who work in West Germany, but live in South Limburg or Belgium. Reference has already been made above to the trans-border use of public services, such as libraries and theatres, and the same applies to the use of open air recreational facilities.

The national frontiers are also often crossed for shopping purposes. Sometimes it is more advantageous for people to shop abroad than in their own country. Changes in exchange rates, such as the drastic devaluation of the Belgian franc in the Spring of 1982, may cause these patterns to alter dramatically. Apart from these forms of international contact arising from the population itself, international activities initiated by government are also beginning to develop on a modest scale. The electricity grids of the three countries, for example, have been linked up, with the voltages of the different high tension networks being adjusted to each other in transformer stations. In town planning in particular, there is much scope for international co-operation, which would place many regions and their problems in a completely new context.

The problems of the Eastern Mine District, stemming from the mine closures, also exist immediately across the German border, as well as in the Belgian Campine region. To take another example: the South Limburg 'Mergelland, together with the neighbouring 'Voerstreek' in Belgium can fulfil a buffer function as a 'green' zone between the Dutch mining district, Maastricht Liège, Verviers and Aachen. The South Limburg airfield of Beek, north of Maastricht (fig. 1), could become much more significant as a civil airport serving a region extending over the three countries than it is at present within the Netherlands. (In May 1982 it was decided to extend this airfield with an east-west runway).

In order to be able to use the existing opportunities for international co-operation more fully, however, a change of mentality is necessary in all three countries, with a national orientation giving way to a cross-frontier regional approach. This forms part of the objectives of the Meuse-Rhine Euro-region collaborative body, set up in 1975. It consists of representatives of the Belgian provinces of Limburg and Liège, the southern portion of the Dutch province of Limburg and the Aachen region in West Germany (forming part of the administrative district of Cologne). There are permanent bureaux in Maastricht and Aachen (see address list at the end of this chapter). The first activities consisted of exchanges in the fields of sport and culture. In 1978 it was also decided to direct attention towards the economy, town planning and the infrastructure. There had already been forms of collaboration between the chambers of commerce in the three countries.

Also of interest in the same connection are the activities undertaken by the Maas-Rhein-Institut für Angewandte Geographie und Lehrerbildung of the Rheinisch-Westfälische Technische Hochschule in Aachen since 1977 (address at the end of this article). The institute provides a series of documents for educational use in the three-country region ("Informationen und Materialien zur Geographie"), with geographically relevant information relating to the region. The texts of the brochures are in German, French or Dutch and are accompanied by translations or summaries in the other two languages. At the time of publication of this Bulletin ten brochures had been published.

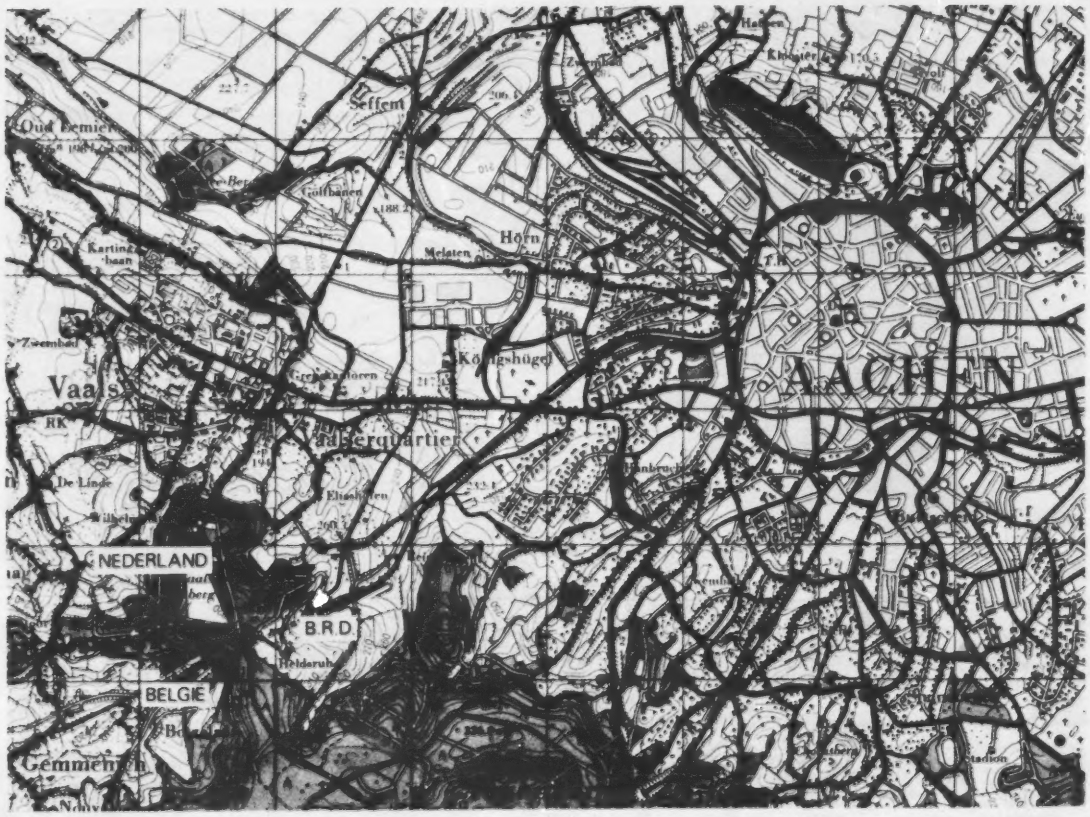


fig. 14 – Extract from the topographical map of the area round Vaals and Aachen, scale 1:50,000 (Topographic Service, Delft, South Limburg sheet).

The institute also organises cross-frontier excursions with a regional and thematic orientation. The aim is to offer schools, which at present are nationally oriented in the three countries and have to base their work on national syllabuses, opportunities to devote more attention to cross-frontier regional themes.

I.4.2. Vaals: border town where three countries meet

The municipality of Vaals, with over 10,000 inhabitants, forms the clearest example of the international orientation of South Limburg. The market square of Vaals is situated less than five kilometres from the cathedral of Aachen, fifteen kilometres from the Belgian town of Eupen and two kilometres from the point where the frontiers of the Netherlands, Germany and Belgium meet (fig. 14). Many foreigners live in Vaals and many inhabitants of Vaals work abroad. In the shops and at Vaals market one meets many foreign customers, while the inhabitants of Vaals – as we have seen – make use of the cultural facilities in Aachen. Some of these aspects are illustrated in more detail below.

Vaals as an international town

On 1 January 1982, Vaals had a population of 10,496; 2,361 or 25% of the population were foreigners. Although the great majority came from the two neighbouring countries (Table 9) they consisted of a total of 24 different nationalities.

More than a third of the 2000 German inhabitants of Vaals, consisted of students (719), the majority from the Rheinisch-Westfälische Technische Hochschule in Aachen, who find it easier to get hold of accommodation in Vaals than in Aachen. Moreover, some of the buildings of the Hochschule – on the western urban fringe of Aachen – are closer to Vaals market square than to Aachen cathedral.

Table 9 – Foreigners resident in Vaals on 1 January 1982

Nationality	no.
West German	2122
Belgian	128
22 other	111
Total	2361

Source: Municipality of Vaals

*The Vaals weekly market *)*

A market is held every Tuesday morning in the market square. According to the results of a survey held in the autumn of 1978, 60-65 stallholders from some 25 towns in the province of Limburg are regularly present. In general, the stallholders do not visit any foreign markets. 60% of the 1500 people visiting the market come from West Germany and 20% from Belgium (at least within the 10% sample that was taken).

The majority of foreign customers come from Aachen and its surroundings, followed by the Belgian towns of La Calamine and Eupen. The survey showed that where foreign customers come from is determined by such things as the motorway network and the bus services, the competition from other markets and the linguistic frontiers (not one of the market visitors interviewed came from the French-speaking part of Belgium!).

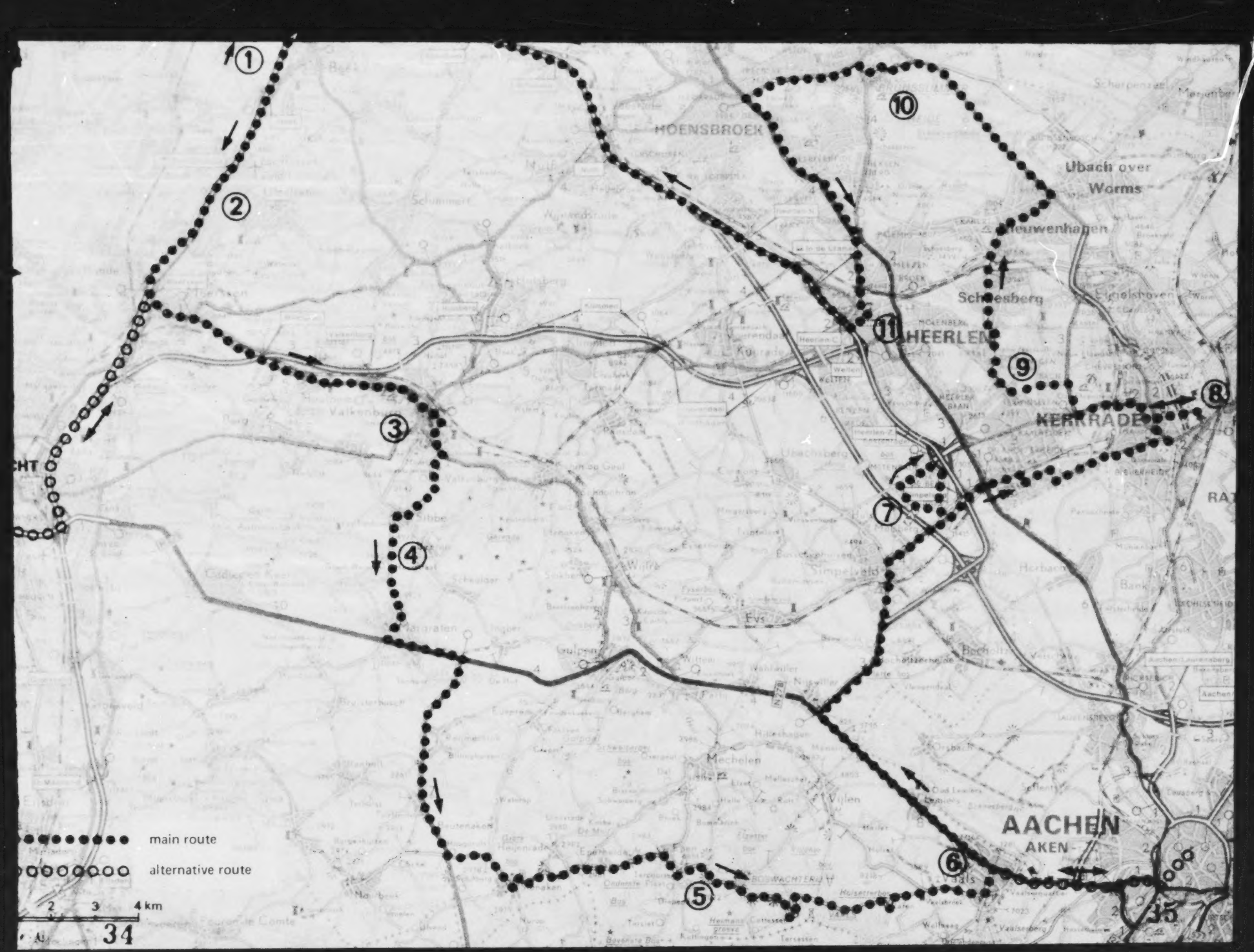
Factors which attracted people included the quality and variety of goods on sale at the Vaals market, particularly specific goods such as fish (Plate VIII), dairy products, vegetables, fruit, flowers and plants (although about half of the stalls sold clothing and textiles). For the tradespeople of Vaals it is important that many of the visitors to the market also make purchases in the shops and/or visit the cafés and restaurants.

*) In writing this section use was made of the article by W. Schoop: "Der Vaalser Wochenmarkt und seine grenzüberschreitenden Kontakte" in "EUROREGIO Informationen und Materialien zur Geographie" Nr. 7, Aachen, 1980.

Photograph VIII – *Fish, one of the 'specialities' in the weekly market at Vaals, recommended in different languages and with the price given in Dutch guilders, German marks en Belgian francs.*

33

fig. 15 – Excursion route. ——→


HOENSBROEK
Ubach over Worms
Nieuwenhagen
Schaesberg
HEERLEN
KERKRADE
Eys
Mechelen
Vijlen
AACHEN
AKEN
main route
alternative route
2 3 4 km
34
35

I.5. An excursion route

From the variety of excursion routes in and around South Limburg a route has been selected here which covers the various aspects discussed in the preceding paragraphs. The route shown in fig. 15 is more or less circular. The description below assumes that the starting point will be in the north, but it is obviously also possible to begin the tour at another point, such as Maastricht or Aachen. The numbers against the different excursion points in the description below correspond with those in fig. 15. The use of one of the following general maps is recommended:

- ANWB Tourist Map, Zuid-Limburg, 1 : 100,000; pub. by ANWB, The Hague;
- Topographic map of South Limburg; 1 : 50,000; pub. by Topographic Service, Delft;
- Mergellandroute, ANWB tourist route, 1 : 50,000; pub. by ANWB, The Hague;
- Randstad Zuid-Limburg Oost, 1 : 15,000 (specially suitable for the Eastern Mine District), pub. by Falkplan/CIB, The Hague.

We would also refer to two cross-frontier maps produced on the initiative of the Meuse-Rhine Euro-region:

- EUREGIO Maas-Rhein, road map, 1 : 300,000, pub. by Reise- und Verkehrsverlag, Berlin (covering approximately the area Antwerp-Cologne and Eindhoven-Namur);
- 20 Stadtpläne aus der 'Euregio Maas-Rhein', pub. by Kreis Aachen.

1 – Just north of the edge of the map (fig. 15) is the Kerensheide motorway intersection near Stein, where the N-S, A2/E9 motorway crosses the E-W, A76/E39 motorway (cf. Plate IV, p. 17). Coming from the north, one sees to the left of the road, both before and after the intersection, the **DSM works.** First one passes the nitrogen plant with, to the east, the site of the former state-owned Maurits mine. After the intersection is the Polychemical plant.

2 – **South Limburg Airport**
More than five kilometres beyond the intersection South Limburg Airport is situated immediately to the east of the road. Measured in terms of number of aircraft movements, this is the fifth airport in the Netherlands (1980) after Schiphol, Rotterdam, Eindhoven and Groningen. There are daily passenger flights to Amsterdam, Eindhoven and London, and weekly connections with New York and Miami. With the construction of an east-west runway it is hoped to increase the airport's importance for freight traffic – in a 'Euro-regional' context.

Alternative route via Maastricht
If desired, a diversion may be made here from the excursion route for a visit to Maastricht, the capital of the province of Limburg, which has more than 110,000 inhabitants. It is a city with a rich history, stretching back to the Roman period, from which it derives its name ('Trajectum ad Mosam'). The city is divided in two by the River Meuse. The old part is situated on the left bank and the new suburbs extend west of it to the Belgian frontier. An interesting example of the renewal of a complete inner city district is provided by the Stokstraat quarter, situated in the south-east of the old city, on the Meuse. A brief description of the historical and architectural features of Maastricht is given by T. Schreiber in Heft 8 of the 'Informationen und Materialien zur Geographie der Euregio Maas-Rhein'.

3 – **Valkenburg** – The route leaves the A2 motorway at the Meerssen junction and runs east through the valley of the Geul to Valkenburg. We have already mentioned how important tourism is to this municipality, which has more than 17,000 inhabitants (p. 8).

4 – **Margraten Plateau** – Immediately beyond the centre of Valkenburg the route turns off to the right in the direction of **Sibbe.** Between Valkenburg and Sibbe the road climbs up through one of the woodland hangers which are so typical of South Limburg. Sibbe is situated on the plateau in an area used mainly for arable farming (cf. Section I.2.1., p. 10). South of Sibbe (follow signs for **Margraten**) the road crosses the part of the Margraten Plateau which the ENCI proposes to quarry for marl; in the fields to the right of the road is a sign in big letters saying "AFGRAVEN NOOIT" (Excavate, never!).

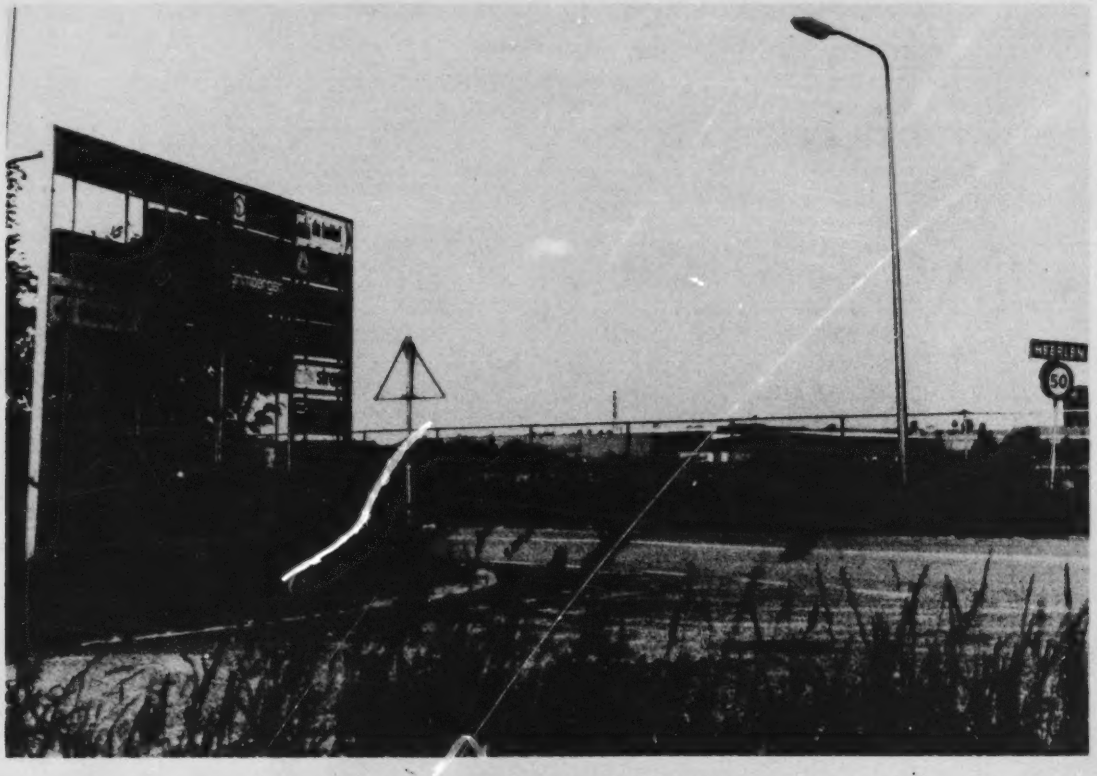
In Margraten follow the 'Doorgaand Verkeer' (Through traffic) signs as far as the Maastricht-Aachen main road. Follow this road in the direction of Aachen and turn right after 1½ km towards **Noorbeek/Slenaken.** This road crosses the plateau. After five kilometres turn left in the direction of Slenaken/Epen/Vaals; from this point until the outskirts of Vaals the excursion route coincides with the 'Mergelland' tourist route.

5 – **'Mergelland' route (part)** – This route is signposted by low, hexagonal, white boards, bearing the legend 'Mergellandroute' and a directional arrow. Because the road crosses the streams at right angles there is a delightful alteration of wooded slopes and farmed plateaux. From the high ground there are attractive views, including some southwards over the Belgian Voerstreek (the road runs on average no more than 1 or 2 kilometres north of the Dutch-Belgian frontier). Noteworthy along this section of the route is the large number of hotels and guest houses. From the village of Epen a walk can be taken along the valley of the Geul to the Heimans quarry (cf. p. 9). Beyond the village of Camerig the landscape changes to the extent that there are now also woods on the plateau. These form part of the Vaals Forest Conservancy. Where the road emerges from the woodland there is a fine view to the east, with Vaals in the foreground and Aachen behind it.

6 – **Vaals** – Shortly before Vaals, where the Mergelland route turns sharp left towards Vijlen, the excursion route continues straight on towards Vaals. (For information about Vaals, see Section I.4.2., p. 31).

Alternative route via Aachen

The West German city of Aachen can be reached in a short time from Vaals. Geographical data about this city are contained in various issues of "Informationen und Materialien zur Geographie der Euregio Maas-Rhein" (Including an article by T. Schreiber, published in German in issue no. 9 and in Dutch in issue no. 10).



Photograph IX – *'De Beitel' industrial estate in Heerlen. Behind the fence the low buildings of one of the firms listed on the board to the left.*

7 — Simpelveld — De Beitel Industrial Estate

From Vaals the excursion route runs N.W. (towards Maastricht). After 8 km turn right towards Heerlen and, at the turn-off for the Aachen-Heerlen motorway, continue **straight on** towards Simpelveld. In this village follow the signs for Heerlen/Kerkrade. Immediately beyond the underpass under the A76/E39 the new De Beitel industrial estate can be seen to the left of the road. (N.B. — here we have reached the Eastern Mine District, where we shall be following a rather complicated route; a good general map on a scale of at least 1 : 100,000 is therefore recommended — see p. 34). De Beitel is one of the first of the industrial sites designated by the government in this region (Plate IX). A tour such as that indicated on the route map will give an impression of the type of businesses established on such sites (light industry, warehousing etc.).

8 — Kerkrade/Rolduc mining museum

Once it has returned to the Simpelveld-Kerkrade road, the route continues towards Spekholzerheide. Turn right at the second set of traffic lights and turn left immediately after crossing the railway (Parallelweg). This street runs along the foot of the former slag heap of the Willem-Sophia mine. A stone crusher on the site produces material for road building, tennis courts etc. To the left of the road is the site of the former Willem-Sophia mine itself, which will be developed for housing in the near future. The route then follows the **first road to the right** past the slag heap and an industrial site where a number of smaller enterprises have been established.

Turn left at the next major road (towards Kerkrade, **Hamstraat**) and then continue straight on towards Herzogenrath. To the right of the road in Kerkrade is the old 'Nulland' headstock of the former Domain mine. Beyond the intersection (traffic lights) a new housing estate can be seen to the right of the road on the site of the former Domain mine.

At the end of the **Mijnstraat** turn left into the **Nieuwstraat** and then left again after a little more than 100 metres (**Holzstraat**). The Nieuwstraat, a small section of which has been followed here, runs along the Dutch-German frontier. Parallel to it, on German territory, runs the 'Neustrasse' with a concrete barrier scarcely fifty centimetres high forming the frontier. At a few points in the barrier there are openings where local inhabitants, issued with a special pass for 'local traffic', are allowed to cross the border.

From the Holzstraat, by following the signs for Rolduc, one reaches the old abbey situated against the German frontier and housing the **Mining Museum** (see the list on p. 38; admission price Hfl. 2.50, students Hfl. 1.25, with facilities for group reductions and conducted tours by previous arrangement — for address see the list on p. 38).

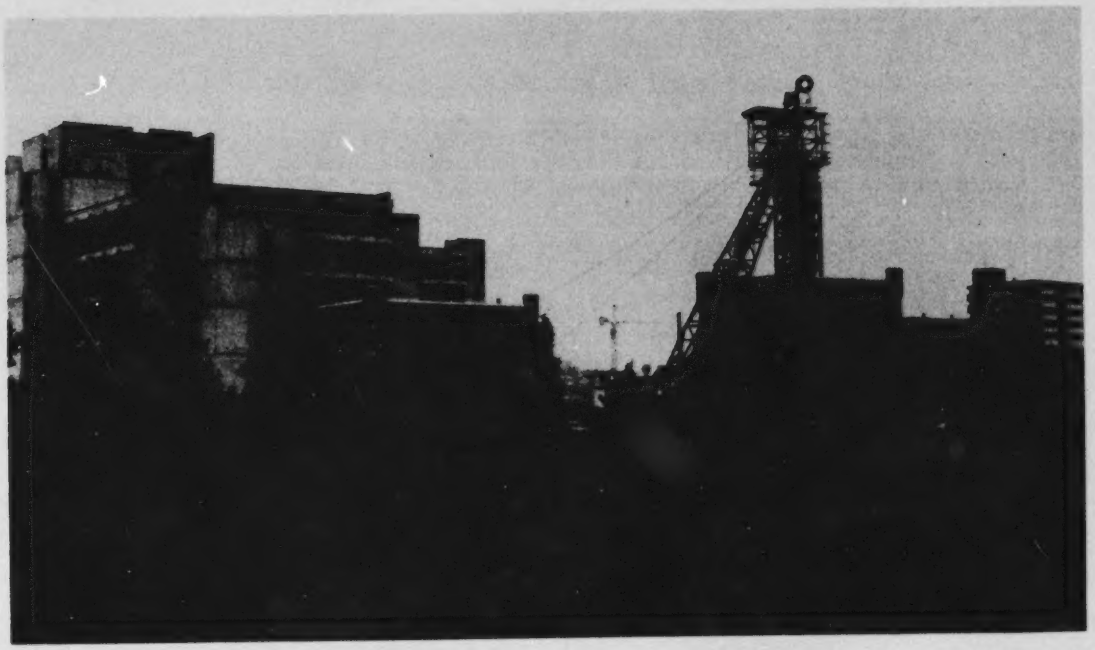
9 — Schaesberg/reuse of mine site for recreation

The return journey from Rolduc Abbey is along the **Rolduckerstraat**. Continue straight on at an intersection with traffic lights and turn right at the next main road intersection. Then turn right at the second set of traffic lights, towards Heerlen/Maastricht, passing under the railway. Then turn right at the second set of traffic lights, in the direction of the Dentgenbach industrial estate. Take the first road to the left (**Tunnelweg**) and the industrial site is then situated to the right of the road.

A little further on, to the right of the road, is the former slag heap of the Oranje-Nassau II and Wilhelmina mines, which has been wholly laid out for different forms of open air recreation (cf. p. 24). There is an artificial ski slope in an orange material and footpaths on the remodelled and planted tip. By turning right at the traffic lights at the end of the Tunnelweg and then right again at the sign "Draf- en renbaan" (Trotting and race course), one reaches the beautifully equipped equestrian sports centre (with café and restaurant). At the end of the Hofstraat turn left at the STOP sign and then right at the main road (**Hoofdstraat**). The route continues straight on through the centre of Schaesberg (**Streeperstraat, Pasweg, Kampstraat, Hoogstraat**). After this it continues towards Brunssum.

10 — Brunssum/AFCENT centre/former Emma mine

The road from Nieuwenhagen to Brunssum passes through an area of woodland and heath, which forms a small relic of the former landscape in this area. After going through this green belt turn left (towards Heerlen/Aachen). After about 700 meters turn right (**Govert Flinckstraat**) and then left at a T-junction with a main road (**Venweg**). At this point the site of the former State-owned Hendrik mine lies to the right of the road, where it now houses the Headquarters of AFCENT. Among other things, an old headstock serving as a radar tower is to be seen. In the vicinity of the former coal mine the characteristic miners' terraces can also be seen.



Photograph X – *Headstock and winding engine house of the Oranje-Nassau I mine, preserved as industrial monuments in the CBS site in Heerlen.*

Turn right at the traffic lights at the end of the Venweg and left at the next set of traffic lights (towards Hoensbroek/ Sittard). After a little more than a kilometre this road passes the site of the former State-owned Emma mine. One of the cooling towers here has been preserved as an industrial archaeological monument.

11 – Heerlen/CBS

At the roundabout at the end of the former mine site turn left (towards Hoensbroek/Heerlen). At the end of the Emma site, to the left, are AFCENT offices, housed in the former head office of the mine. A little farther on, to the right of the road, is the former tip of the Oranje-Nassau III mine. The route continues towards Heerlen-**centrum**. About a kilometre beyond a roundabout, to the right of the road is the new office complex of the CBS (Central Bureau for Statistics), on the site of the former Oranje-Nassau I mine (cf. p. 26; see Plate X).

The road passes under the railway yard at Heerlen Station. Turn left at the next set of traffic lights (towards town centre) and then follow the signs to the 'Thermen' (baths). The Baths Museum, a large modern building with a blue roof, has been erected over the excavation site of a large Roman baths complex. In a side wing of the museum there is a small permanent exhibition about urban renewal in the Eastern Mine District. There is also an audio-visual presentation on this topic. The exhibition may be visited by groups of at least ten people by previous arrangement with the Eastern Mine District Urban Authority (Stadsgewest Oostelijk Mijngebied; see address list on p. 38).

From Heerlen it is possible to return to the Kerensheide motorway intersection near Stein, where the excursion began, by means of the motorway which crosses the town (signs for Geleen).

I.6. Adresses

Below is a list of addresses of bodies which have been mentioned in this article about South Limburg or which may be helpful to anyone making further studies or preparing excursions to the region.

– Vereniging voor Vreemdelingenverkeer (V.V.V.) Het Geuldal, (Geuldal Tourist Travel Office)
Th. Dorrenplein 5; P.O. Box 820,
6300 AV Valkenburg; tel. 04406-13364

- Stichting Milieufederatie Limburg (Limburg Environmental Federation)
  Oranjeplein 37a,
  6224 KG Maastricht; tel. 043-625385

- Eerste Nederlandse Cement Industrie (ENCI),
  Lange Kanaaldijk 113,
  6212 NA Maastricht, tel. 043-845555

- Dutch State Mines (DSM, Head Office),
  Van der Maessenstraat 2, P.O. Box 65,
  6400 AB Heerlen; tel. 045-788111

- Economisch-technologisch Instituut (ETI) Limburg,
  St. Servaesklooster 39,
  6211 TE Maastricht, tel. 043-51051

- NV Industriebank LIOF
  P.O. Box 800,
  6200 AV Maastricht, tel. 043-54181

- Stadsgewest Oostelijk Mijngebied, (Eastern Mine District Urban Authority)
  Apollolaan 104,
  6411 BD Heerlen; tel. 045-718120

- Gemeente Vaals, (Municipality of Vaals)
  van Clermontplein 15,
  6291 AT Vaals; tel. 04454-4040

- EUREGIO Maas-Rijn (Meuse-Rhine Euro Region)
  Bouillonstraat 3,
  6211 LH Maastricht, tel. 043-849999

- Maas-Rhein-Institut für Angewandte Geographie und Lehrerbildung (RWTH Aachen),
  (Meuse-Rhine Applied Geography and Teacher Training Institute)
  Ahornstrasse 55,
  5100 Aachen,
  Federal German Republic; tel. 0241-803637

- Rolduc Mining Museum
  Heyendahllaan 82,
  6464 EP Kerkrade; tel. 045-457138

II – STATISTICS

II.1. Introduction

In this edition of the IDG Bulletin we have followed a different course from previous years in making a choice of statistics. Since its is now more than three years since the IDG issued a third, completely revised edition of the "Compact Geography of the Netherlands", the statistics it contains are in urgent need of revision. A fourth edition will not appear for several years, so we have decided to bring the statistics contained in the "Compact Geography" up-to-date in this issue of the Bulletin. The letters CG refer to the relevant pages of the "Compact Geography".

II.2. Area
(CG, pp. 4/5)

The CBS gives the following figures for the area of the Netherlands at 1 January 1981:

a –	land area (i.e. exc. waters wider than 6 m.)	33 940 km^2
b –	total area incorporated into municipalities	37 313 km^2
c –	total territory of the Netherlands (i.e. inc. Lake IJssel, Wadden Sea and a narrow strip of the North Sea)	41 160 km^2

It is usual to take the figure given under b. as the area of the Netherlands; for the calculation of population density per km^2 of land, however, the figure given under a. is used. In the spring of 1982 the government proposed extending Dutch coastal territorial waters from three miles to twelve nautical miles (in accordance with legislation which now applies in most other countries of the world).
The Netherlands still contains eleven provinces; the proposals for an administrative reorganisation of the country have not yet been carried out. The number of municipalities has been reduced from 833 in 1978 to 774 on 1 January 1982.

II.3. Demography
(C.G, pp. 18/19)

Table 10 – Key demographic figures for 1981

Birthrate	12,5	
death rate	8,1	
natural increase		4,4
immigration	5,6	
emigration	4,4	
net migration		1,2
total population growth		5,4

Changes in the breakdown of the population by age groups from 1900 to 1980 are given in Table 7 of last year's Bulletin. On 1 January 1982 the breakdown was as follows:

Table 11 – Population by age at 1 January 1982 (in %)*

0 - 19 years	30,3
20 - 64 years	58,0
65 years and over	11,7

* provisional figures

II.4. Distribution of the population
(CG, pp. 20/21)

The percentage of the total Dutch population living in the three western provinces of North Holland, South Holland and Utrecht has declined somewhat and amounted on 1 January 1982 to 44,5% . The density figures for the most and least densely populated provinces on the same date were 1075 (South Holland) and 160 (Drente).

The table below gives the area, population and population density at 1 January 1982 of each province, each region and the Netherlands as a whole and population growth over the past five years (cf. fig. 16).

fig. 16 – Regions and provinces.

Table 12 – Area, population, population density and population growth, by province and by region

	land area in km2*) 1 Jan 1982	population x 1000 1 Jan 1982	pop. per km2 of land 1 Jan 1982	% growth 1 Jan 1977 to 1 Jan 1982
Groningen	2337	559,1	239	2,8
Friesland	3353	592,4	177	4,6
Drente	2654	423,5	160	3,3
NORTH NETHERLANDS	**8344**	**1575,1**	**189**	**3,6**
Overijssel	3813	1033,8	271	4,1
Gelderland	5009	1719,1	343	4,0
S. IJsselmeerpolders	955	89,8	94	119,0
EAST NETHERLANDS	**9776**	**2842,7**	**291**	**5,8**
Utrecht	1332	916,7	688	4,9
North Holland	2668	2312,3	867	0,6
South Holland	2905	3121,5	1075	2,3
WEST NETHERLANDS	**6905**	**6350,4**	**920**	**2,0**
Zeeland	1785	353,7	198	5,3
SOUTH WEST NETHERLANDS	**1785**	**353,7**	**198**	**5,3**
North Brabant	4958	2085,4	420	4,7
Limburg	2171	1077,2	496	2,0
SOUTH NETHERLANDS	**7130**	**3162,6**	**443**	**3,8**
NETHERLANDS **)	**33940**	**14285,8**	**421**	**3,4**

*) area excl. waters wider than 6 metres.

**) population of the Netherlands including people with no fixed address entered in the Central Population Register

II.5. The economy
(CG, pp. 24/25)

The break-down of the economically active population in 1981 was as shown in Table 13.

In view of the greatly increased unemployment, it will be obvious that the 'restraint policy' for the West referred to on pp. 24-25 of the "Compact Geography" has found little application in practice.

Table 13 – Volume of labour in man-years, absolute and in %, 1981

	absolute x 1,000	in %
agriculture and fisheries	274	5
mineral extraction and manufacturing	1424	28
trade, traffic and other services	3038	59
unemployed	401	8

II.6. Agriculture
(CG, pp. 26/27)

Land use in the Netherlands on 1 January 1979 is shown in fig. 17.

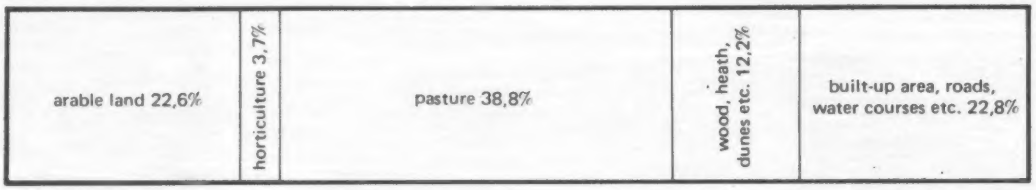


Fig. 17 – Land Use in the Netherlands in % on 1 Jan 1979.

II.7. Mineral extraction
(CG, pp. 28/29)

The comparison of energy consumption in 1963 and 1977 given on p. 28 of the "Compact Geography" is amplified in table 14 with figures for 1981.

Table 14 – Energy consumption in 1963, 1977 and 1981, in %

	1963	1977	1981
Coal	44	5	7
Natural gas	2	54	47
Petroleum	54	37	42
Nuclear energy	0	4	4

The table shows clearly how the use of coal (exclusively imported) has increased during the past few years. The reasons for this are greatly increased oil prices and the efforts of the government to prevent Dutch natural gas being used up too quickly.

NB – The N for Norway shown in the top right-hand corner of the map on p. 29 (CG) has been placed in the *Danish* sector of the continental shelf and should therefore be replaced by the letters DK.

II.8. Manufacturing
(CG, pp. 30/31)

In 1981 35% of the national income was derived from manufacturing, while 82% of total exports consisted of manufactured goods.

Table 15 gives the distribution of the numbers of employees per region in manufacturing in 1980 as percentages of the national total.

Table 15 – Employees in manufacturing by region* in % of the national total, 1980

North Netherlands	10
East Netherlands	20
West Netherlands	39
South West Netherlands	2
South Netherlands	29

* for a map of the regions see fig. 16 on p. 40.

II.9. Trade and traffic
(CG, pp. 34/35)

The value of imports and exports from and to the countries given on p. 35 of the "Compact Geography" is given in Table 16 for 1981.

Table 16 – Value of imports and exports by country or group of countries in 1981, in millions of guilders

		IMPORTS		EXPORTS	
	Federal German Republic	35192		50280	
	Belgium and Luxemburg	18645		24476	
	France	10535		17869	
	United Kingdom	14065		14134	
	Italy	4892		9560	
	Denmark	1421		2875	
	Republic of Ireland	965		819	
	Greece	498		1696	
total	**EEG**		**86215**		**121710**
	USA		15570		5495
	Western Asia		17605		6713
	Africa		9035		7245
	Eastern Europe		6635		3456
	Other countries		29424		26213
grand-total			**164484**		**170832**

In 1981 *navigable waterways* carried 19% of the tonnage of inland goods traffic, and 27% of inland goods traffic in ton-kilometres.
Rail traffic covered 6.5% of inland passenger transport in passenger-kilometres and 4% of inland goods transport in ton-kilometres.
Motor transport was responsible for 74% of inland passenger transport expressed in passenger-kilometres, and for 69% of inland goods transport in terms of ton-kilometres.

II.10. Amsterdam and Rotterdam
(CG, pp. 36/37)

The summary of population for the municipalities and agglomerations of Amsterdam and Rotterdam given on p. 36 of the "Compact Geography" has been updated in the table below by the inclusion of figures for 1 January 1982.

Table 17 –

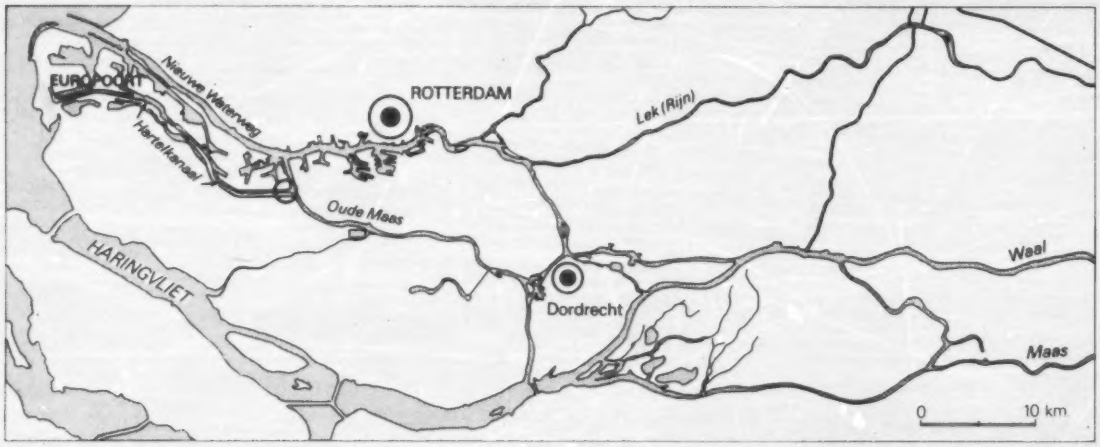
Population	1 January	Amsterdam	Rotterdam
Municipality	1978	728,746	590,312
	1982	700,759	568,167
Agglomeration	1978	965,246	1,017,136
	1982	945,062	1,025,580

III – BRIEF NOTES

III.1.– Traffic

III.1.1. Rotterdam/Europort

On 7th January 1982 the open inland navigation link in the Europoort area between the Hartel Canal and the Oude Maas (Old Meuse) was opened to shipping (fig. 18). In 1980, as reported in the IDG Bulletin for 1979-1980 (pp. 41-42, fig. 15 and photograph IX), a start was made on cutting through a tongue of land beside the Hartel Locks.



○ = new open cut

fig. 18 – Shipping routes around Rotterdam

The Hartel Canal, which was opened in 1969, forms the inland navigation link between Europort and its hinterland, reached by the River Rhine and Meuse. It is used mainly by boats which take on board bulk cargoes such as ores, grains, coal and petroleum in Europort and transport them to the hinterland. The intensity of this traffic had become so great – in 1981 approximately 38.000 ships and push-tows passed the locks in each direction – that waiting times at the Hartel Locks ranged from one to as many as twelve hours. The locks complex was constructed at the time to prevent penetration of salt into the Hartel Canal, but now this is no longer a real danger since the completion of the greater part of the Delta Project and other measures (e.g. the deepening of the most westerly section of the New Waterway), and it was decided in 1978 to construct an open cut. The lock has been maintained for exceptionally large vessels, it has the only moveable section of the bridge over the Hartel Canal. South of the locks a tongue of land 200 metres wide has been dug through creating the open cut with the Oude Maas (Plate XI). Rotterdam/Europort is now therefore not only a lock-free port for sea-going ships, but inland shipping is able to reach the German hinterland from Europe via the Hartel Canal, Oude Maas, Waal and Rhine without having to go through any locks. The time saved by by-passing the Hartel Locks is so great that a push-tow plying regularly between Europort and the Ruhr can now make about seven additional trips each year.

Both the port authorities in Rotterdam and the industries of the German Rhine-Ruhr region have been appealing for a further intensification of inland shipping traffic by the introduction of push-tows of six instead of four units. A number of tests were carried out in the Hartel Canal in 1981, but permission has not yet been obtained from the Dutch Ministry of Transport.

III.1.2. The Amsterdam-Rhine Canal

The widening and deepening of the Amsterdam-Rhine Canal was completed in the autumn of 1981. This 72 km. long canal, which has linked Amsterdam with the Lek (Rhine) and Waal since 1952, is now 110-130 metres wide and 6 metres deep, making it suitable throughout its length for navigation by modern push-tows of barges (although not for the proposed tows of six units referred to above). The project entailed moving back the banks, deepening the bottom and replacing bridges and modernising locks, and took sixteen years to complete. The modernised canal, on which 40-45 million tons of goods are carried every year, means an improved connection with the German hinterland, for both Amsterdam and the coal and ore terminal planned for IJmuiden.

III.1.3. Metro and express tram in the Randstad.

The North-South Line of the Rotterdam Metro was opened in 1968. Partly underground and partly on viaducts it was the first underground in the Netherlands.
Amsterdam followed in 1977 with the rail link between the city centre and the Bijlmermeer (see IDG Bulletin, 1977-78, pp. 38-41). In both cities these lines were originally visualised as the start of an extensive network of underground railways. The view was soon taken, however, that each of the agglomerations in the Randstad is too small in itself (the maximum size is 1 million inhabitants) to justify the construction of a fully fledged underground network. It was decided that rail transport in the large cities should consist as far as possible of the "express tram", an intermediate form where modern vehicles on reserved track (such as the central reservations of dual carriageways, separate viaducts or, where necessary, tunnels) enable journey times to be considerably quicker than with the traditional tram.

Photograph XI – *The new open cut between the Hartel Canal in the foreground and the Oude Maas in the background. To the left, the locks (looking east). The darker, narrow canal on the right connects the Oude Maas with the Brielle Lake, which is exclusively used for aquatic sports.*

An express tram line of this type came into use in Rotterdam in the spring of 1982. It forms the first eight kilometres of the east-west link which, by 1986, will connect West Rotterdam (from the boundary with Schiedam) with the new suburbs of Alexanderpolder and Ommoord in the north east of the city. The line will then be 18 kilometres long (fig. 19).

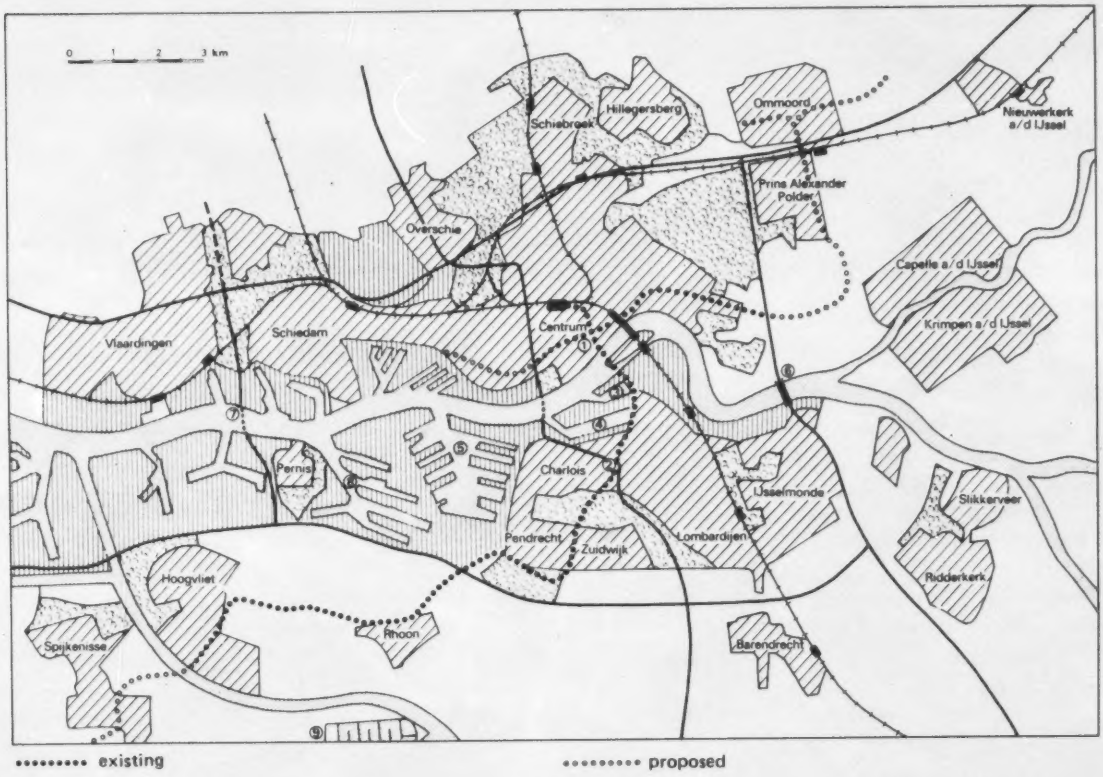


Fig. 19 – Metro lines in Rotterdam.

In the centre of the city – under the Coolsingel – two lines cross each other in a two-level station. The North South line was extended to the satellite town of Hoogvliet in the port zone in 1974. In 1985 it will be extended under the Oude Maas to Spijkenisse. Rotterdam will then have a metro and express tram network with a total length of 40 kilometres.

III.1.4. Rail links under construction

- In and to the south of Utrecht, work is proceeding steadily on the construction of an express tram link between the city and the 'growth centre' of Nieuwegein, situated to the south. It is hoped to open this line at the end of 1983.

- A start has been made on the construction of the Flevo railway, which branches from the Amsterdam-Hilversum line and will link Almere in 1987 and Lelystad in 1988 with the national rail network (see Plate XIV, p. 48). In order to protect the birds in the Oostvaardersplassen nature reserve – an area of natural beauty which came into being more or less by accident in a zone originally intended for large industrial estates – the line of the route in southern Flevoland was pushed somewhat to the south east at the last moment.

III.2. – Civil engineering works

III.2.1. The Delta Project

Work is proceeding steadily on the storm-surge barrier in the mouth of the Eastern Scheldt. Good progress is also being made on the two additional secondary dams – the Philips Dam and the Oester Dam. On the artificial work island the 'Neeltje Jans' in the middle of the mouth of the Eastern Scheldt, more than half of the 66 concrete piers which are soon to be placed in the three remaining tidal channels, have now been completed (Plate XII and fig. 20). One of the construction sites has again been flooded and the lifting ship 'Ostrea', which was specially designed for this project, arrived on site in the spring of 1982. During the course of 1982 the ship will start transporting the 17,500-ton piers to their positions in the three tidal channels. The sea-bed at these points has been prepared to bear these colossi. Some setbacks have been experienced with this part of the work, as a result of which it will be completed later than was originally planned (in 1986 at the earliest instead of in 1985), and the costs will also be higher.

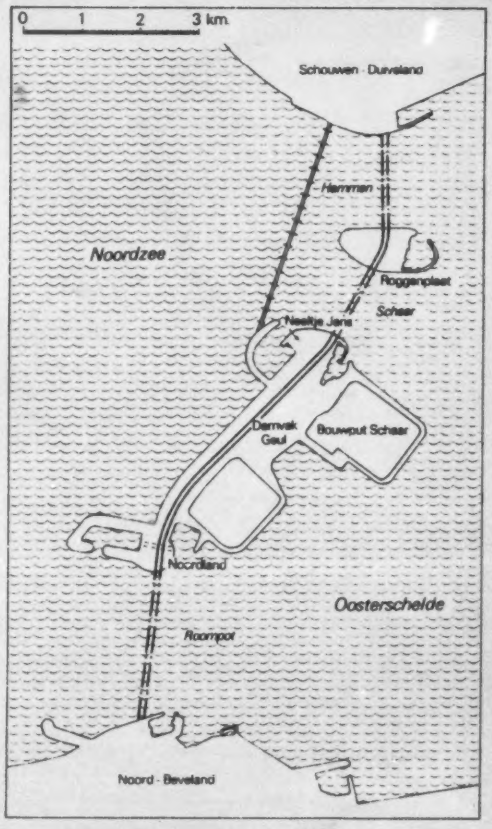


fig. 20 – The Eastern Scheldt Works.

Photograph XII – *The 'Schaar' construction site on the 'Neeltje Jans' work island in the Eastern Scheldt. In the foreground are two construction sites in which 20 and 27 piers, respectively, are being constructed for the dam. Behind them is a flooded construction site with 19 completed piers. From here, during the course of 1982, a start will be made with transporting the piers to their final positions in one of the three remaining openings in the Eastern Scheldt. In the background, the auxiliary bridge to the island of Schouwen-Duiveland (cf. fig. 20; looking west).*

18

Photograph XIII — *Satellite photograph of Flevoland and surrounding area.*
A = East Flevoland, B = South Flevoland,
1 = Oostvaarders Lakes, 2 = Lelystad, 3 = Almere-Haven, 4 = Almere-Stad, 5 = Zeewolde.
Also visible on the photograph are Amsterdam (left), the Veluwe (bottom right) and part of the North-East Polder (top right).
Taken by Landsat 2 in November 1980 from a height of 920 kilometres.

To deal with this latter aspect an investigation had been made into possible economies and it has now been decided therefore, to construct a more simple road over the dam linking the islands of Schouwen-Duiveland and North Beveland.

III.2.2. The Zuyder Zee works.

At 1 January 1982, a total of 5,500 hectares of agricultural land, divided between 107 holdings has been leased to farmers in South Flevoland. On satellite photographs (such as Plate XIII) it can be clearly seen that the land in question is in the northeastern part of the polder bordering on East Flevoland. The parcels there contrast markedly in area with the much larger parcels being farmed by the IJsselmeer Polders Authority in the central part of the polder. (Farming is carried on during the first five years by the State).

Construction of the new city of Almere in the south west of the polder is also proceeding steadily. The oldest centre – Almere-Haven – had a population of 14,860 on 1st January 1982, at which date 5,200 people were living in Almere Stad (Plate XIV). In the south-eastern part of the polder the land is being prepared for development of the settlement of Zeewolde, where the first residents are expected in 1984. Zeewolde will have a service function for the surrounding agricultural area and will also be a water sports centre. A large marina is already in use on the lake – the Wolder Wijd – which is extra wide here. Zeewolde has been provisionally planned for a population of 8,000, with a possibility for expansion to 15,000. Reference has already been made in the preceding section to the construction of the Flevo railway.

According to the course of the Key Planning Decision (PKB) procedure, *) the decision about whether or not to reclaim the Markerwaard should be taken in the latter part of 1982, but because of political developments (the Cabinet crisis of May 1982 and the bringing forward of the Parliamentary elections to September), it seems as if the decision will be delayed further.

*) See Section III.3.

Photograph XIV — *Almere-Stad under construction in the south-west part of South Flevoland. Right, part of one of the first residential neighbourhoods. From the foreground (left) to the background (right) runs the line of the Flevo railway. Immediately behind the residential nieghbourhood will be the city centre with the main station of Almere (looking north east).*

III.3. — Physical planning

Below is a review of all the physical planning plans which are at present passing through the Key Planning Decision (PKB) procedure, i.e. the public participation procedure in respect of physical planning proposals of national importance. (See also for example, "Compact Geography of the Netherlands", p. 38, the IDG Bulletin for 1979-80, pp. 18/19 and p. 46, and the IDG Bulletin for 1980-81, pp. 44-46).

The publication of each key planning decision consists in principle of five parts:

A — The government's policy proposal
B — A summary of comments received
C — A report from the Advisory Council for Physical Planning
D — The government's decision
E — Text of the Key Planning Decision confirmed after parliamentary debate.

In the spring of 1982 the situation in respect of the various Reports and Schemes *) was as follows:

*) Where the plans comprise various aspects of future land-use it is customary to speak of a 'Report', the appended map to which is called a 'Structure Sketch'. Where plans relate to a single facet of the physical structure they are described as Structure Schemes'. These are revised after five years, the Reports after ten years. They must again pass through the PKB procedure.

a — procedure wholly completed, i.e. parts A-E published:

- the 'Orientation Report', part 1 of the Third Report on Physical Planning in the Netherlands (see IDG Bulletin, 1979-80, pp. 21-22).
- the 'Urbanisation Report', part 2 of the Third Report (see for example, IDG Bulletin, 1979-80, pp. 22-26).
  A new, revised version of the accompanying Structure Sketch is expected shortly. The most important change is the shift from the concentration of the population in growth towns and growth centres towards an increasing concentration in the major cities. Partly in order to counteract impoverishment of inner city areas and excessive commercial development in the major cities, policy is being increasingly directed towards strengthening the residential function of these areas. In all the cities it is now possible to see dwellings being built on open sites or in places which have lost their original function, such as former port areas (Plate XV).
- The Structure Scheme for Traffic and Transport (see, for example, IDG Bulletin, 1979-80, pp. 46-47). The text of Part E of this report shows, as a result of its discussion in Parliament, a number of important alterations and additions in comparison with the government's decision (Part D). The alterations relate mainly to public transport (possible construction or reopening of railway lines, construction of a number of express train links between neighbouring towns), and to non-motorised traffic (improved facilities for pedestrian, cyclist and moped riders).
- The Structure Scheme for Domestic and Industrial Water Supplies; only Parts A, C and D appeared of this, after which the Policy Proposal (Part A) of the Second Structure Scheme on this topic was published in 1981 (see under d, below).

Photograph XV — *Recently completed housing on the Leuvehaven in Rotterdam.*

. The Structure Scheme for Electricity Supplies; Part E of this was published at the end of 1981. It includes, *inter alia,* a list of power stations to be built or extended and of power transmission lines to be erected. Nothing is said about the kinds of fuel to be used in the power stations.

b – procedure nearly completed, still awaiting parliamentary debate or publication of report of parliamentary proceedings:

. the Rural Areas Report, Part 3 of the Third Report on Physical Planning in the Netherlands (see, for example, IDG Bulletin, 1979-80, pp. 26-28). The main outlines of this report have been elaborated in the three 'Green Structure Schemes' published in 1981, namely those for Land Use Planning, Open Air Recreation and Nature and Landscape Conservation (see under d, below).

. the Structure Scheme for Civil Airfields (see, for example, IDG Bulletins, 1970-80, p. 47 and 1980-81, p. 45);

. the Structure Scheme for Housing (see, for example, IDG Bulletin, 1977-78, p. 47);

. the Structure Scheme for Navigable Waterways. A supplement to this Structure Scheme, Part A of which dates from 1977, was published in 1981. It deals mainly with the interests of recreational navigation on the main waterways network.

c – procedures where the government's policy proposal and the summary of the comments have been published, and the official reports are now awaited.

. the Report on the Development of the Markerwaard. In 1980 the government of the day published its policy proposal to proceed in principle to reclamation of the Markerwaard. A rough estimate shows that about 20,000 people, whether or not through participation in organised actions, took part in the public debate about the Markerwaard. The number of opponents of reclamation (from fishing, nature conservation and open air recreation circles etc.) far exceeded the number of those supporting the idea (from agriculture etc., see further Section III.2.2.).

d – procedures where only the government's Policy Proposal (Part A) has been published and where public participation is now taking place or has recently been concluded, without the summary of comments yet having been published:

. the Structure Scheme for Land Use, in which a distinction is made between *land consolidation* (in areas used only for agriculture), *replanning* (in areas of mixed use) and *adaptive planning* (in areas where projects having a radical effect on the landscape are being carried out);

. the Structure Scheme for Open Air Recreation, in which areas are designated for the expansion of *day recreation* (mainly near towns and urban regions), of *longer-term recreation* and of *water sports;*

. the Structure Scheme for Nature and Landscape Conservation, in which reference is made, *inter alia,* to *natural areas* (such as the coastal dunes and the Veluwe), to *large landscape units* (where agriculture is given priority, but where the maintenance of the landscape also demands attention), to *national parks* (mainly the most valuable parts of the natural areas referred to above) and to *national landscapes* (areas where both natural and cultural values should be preserved in their inter-relationship – e.g. the Friesland Lake District and the Mergelland of South Limburg);

. the Structure Scheme for Defence Lands (see IDG Bulletin, 1980-1981, p. 45);

. the Second Structure Scheme for Domestic and Industrial Water Supplies (see IDG Bulletin, 1980-81, p. 45);

. the Structure Scheme for Seaports. In this Structure Scheme six port areas are listed which offer sufficient space to accommodate the development of seaport activities until 2000 (fig. 21). The six areas are:

1 – the Rijnmond area (Rotterdam/Europoort);

2 – the North Sea Canal area (Amsterdam/IJmond);

3 – the area around Eemshaven and Delfzijl in the province of Groningen;

4 – the Moerdijk area (along the Hollands Diep in the NW of the province of North Brabant);

5 – the area of East Flushing;

6 – the area along the Canal from Ghent to Terneuzen in Zeeland Flanders.

Outside these areas, therefore, no seaport developmen' are to be expected for the present (see also IDG Bulletin, 1980-81, p. 46);

. the Structure Scheme for Pipe-lines, a 'Policy Proposal' which was published in the spring of 1982 with, as its main objective: "Co-operation in and, where necessary, the encouragement of the laying of pipe-lines insofar as this is beneficial to the well-being of the community.
The Netherlands already possesses a trunk pipe-line network of gas, oil and oil products. In the Structure Scheme the possibilities are considered of constructing pipelines to and from other areas than those at present served, and of pipe-lines for other products (such as slurry, i.e. powdered ore or coal transported in liquid form).

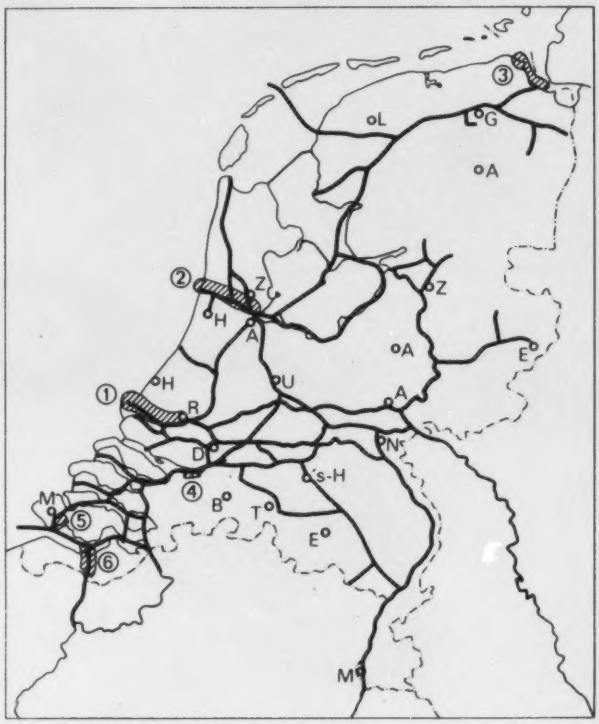


fig. 21 – Seaport sites.

III.4. Miscellaneous

– The merger which took place in 1972 between the Netherlands Iron and Steelworks in Velsen (Hoogovens) and the West German steel firm Hoesch, to form the ESTEL concern (cf. IDG Bulletin, 1976-77, p. 29) will be dissolved in 1982. Hoesch will form a new merger in Germany with the Krupp concern. The Dutch Hoogovens will have to stand on its own feet in future.

– The Mobil refinery in the Amsterdam port zone will most probably be closed in the near future, although the storage and transhipment section will continue to function. Apart from the five large refineries in Rotterdam/Europoort, petroleum will then be refined in the Netherlands only in the industrial zone of East Flushing.

– No satisfactory solution has yet been found to the problem of salt in the Rhine. At a conference of riparian states, held in Paris in November 1981, France declared itself ready in principle to store some of the waste salt from the potash mines underground, although the research into this has not yet been completed. More of the salt may be processed in future in a French table salt factory.

In both instances, however, the plans are still provisional. Moreover, only one million tons of salt could be processed in this way of the total of seven million tons which disappear annually into the Rhine in Alsace (and this seven million tons in turn is no more than 40% of the *total* salt load in the Rhine).

– Mainly as a consequence of the continually rising energy prices, alternative energy sources are also vigorously being sought in the Netherlands. In the last Bulletin (1980-81, p. 44) reference was made to the outline plan for the construction of an energy basin in Lake IJssel.
This plan is still the subject of study.

Obviously, in the *'land of windmills'* energy from wind power is receiving a lot of attention. At present the emphasis is on small installations which can supply a farm or a factory with electricity. There is much interest in this in the glasshouse sector of the horticultural industry, for example, which is greatly affected by the rise in energy prices. Another possibility is provided by the extensive livestock industry in the Netherlands in the form of the extraction of 'biogas' from manure. A small village in the province of Friesland has developed plans whereby it will shortly be able to provide for all of its energy needs by means of these two forms of alternative energy (wind power and biogas).

– in June 1982 it was reported that the state enterprise Dutch State Mines (DSM), the combined electricity generating enterprises and Hoogovens have together acquired a majority interest in a coal mine in the United States. The aim is to safeguard the future coal requirements of these enterprises. In the mine in question the coal is extracted wholly mechanically at a depth of less than 100 metres. As a result, the coal is still considerably cheaper even after it has been transported across the Atlantic Ocean than the coal that could still be dug from the ground in South Limburg. There are plans to participate in at least five other American mines in the near future.

III.5. Excursions, addresses.

The previous Bulletins included a list of addresses of museums, exhibitions, information agencies etc., intended for people preparing excursions to the Netherlands or wishing to obtain information direct from particular agencies. We are repeating this list in the current edition of the Bulletin, with a number of amendments.

PLACE AND INSTITUTION	OPENING TIMES	ADRESS AND TELEPHONE NUMB.
Aalsmeer, Flower auction	Mon-Fri, 7.30-11	Legmeerdijk 313, 1431 GB Aalsmeer, 02977 - 34567
Amsterdam		
Historical Museum (history of the city)	Tues-Sat, 10-17 Sun 13-17	Kalverstraat 92, 1012 PH Amsterdam, 020 - 255822
Aviodome National Aviation Museum	10-17 (Nov-Mar, closed Mon)	Schiphol, Amsterdam, 020 - 173640
Netherlands Maritime Museum	Mon-Sat 10-17, Sun 13-17	Kattenburgerplein 1, 1018 KK Amsterdam, 020 - 254175
Town Planning Department Urban Development Exhibition	Tues-Fri, 12.30-16.30 Thurs 18-21	Keizersgracht 440, 1016 GD Amsterdam, 020 - 222962
Arnhem		
National Folklore Museum "The Netherlands Open Air Museum"	May-Aug, 9-17.30, Sun 10-17.30 Apr/Sept/Oct 9-17, Sun 10-17	Hoeferlaan, 6816 SG Arnhem 085 - 452065
Biddinghuizen (E.Flevoland) Flevohof – exhibition of Dutch agriculture, model farms etc.	8.30-18	Spijkweg 30, 8256 RJ Biddinghuizen, 03211 - 1514
Enschede Twente – Gelderland Textile Museum	Tues-Sat, 10-12 and 14-17 Sun, 14-17	Espoortstraat 182, 7511 CM Enschede, 053 - 319093
Haarlemmermeer Cruquius Museum (in former steam pumping station; polders, draining etc.).	Apr-Sept 10-17. Oct-Nov 10-16, Dec-Mar, by appt. only.	Cruquiusdijk 27, 2141 EW Vijfhuizen, 023 - 285704
Heerlen Geological Museum	Mon-Fri 9-12 and 14-16 Excursions by appt.	Voskuilenweg 131, 6416 AJ Heerlen, 045 - 711910
Kerkrade Mining Museum, Rolduc Abbey	May-Oct, Tues-Fri 9-17; Sat 13-17. July: Sat-Sun 13-17	Heyendahllaan 82, Kerkrade 045 - 457138
Kinderdijk, 16 windmills	Apr-Oct, Mon-Sat 9.30-17.30	near Alblasserdam, 01859 - 4118

PLACE AND INSTITUTION	OPENING TIMES	ADDRESS AND TELEPHONE NUMB.
Koog aan de Zaan, Mill Museum	Tues-Sun 14-17	Museumlaan 18, 1541 LP Koog aan de Zaan, 075 - 215029
Lauwersoog, Expozee (drainage and reclamation of the Lauwers Sea; Wadden Sea).	May-Sept: Tues-Fri 10-17, Sat-Sun 14-17, Oct-Apr: by appt. only	Expozee, Strandweg 1, 9976 ZA Lauwersoog, 05193 - 9045
Lexmond Exhibition Government Service for Land and Water Use (land consolidation in the River District)	by appt. only	De Laak 31, 4128 CA Lexmond, 03474 - 2044
Limmen (NH) Bulb growing Museum	Mon-Fri 10-12 and 14-16	Dusseldorperweg 64, 1906 AL Limmen, 02205 - 1950
Rotterdam Municipal Information Centre (films, slide sets etc.)	Mon 11-17, Tues-Fri 9-17 by appt. only	Coolsingel 42, 3011 AD Rotterdam 010 - 172829
Municipal Water Supply: . Berenplaat Waterworks . Kralingen Waterworks	by appt. only	Galvanistraat 15 (office), Rotterdam 010 - 896811
Brabant Biesbos Water Authority Biesbos Reservoirs	by appt. only	Galvanistraat 15 (office), Rotterdam 010 - 772600
Municipal Port Department (films, slide sets etc.)	by appt. only	Europoint III, Galvanistraat 15, Rotterdam, 010 - 894116
De Dubbelde Palmboom Historical Museum (urban history)	Tues-Sat 10-17 Sun 11-17	Voorhaven 12, 3024 RM Rotterdam 070 - 761533
Schoonoord (Dr) De Zeven Marken Open Air Museum (Drente c. 1900)	Palm Sunday – Oct, 9-18	Tramstraat 73, 7848 BJ Schoonoord, 05918 - 1577
Sliedrecht (ZH) Dredging Museum	Tues-Sat, 14-17 (for groups, other times possible by appt.)	Molendijk 204/208, 3361 ER Sliedrecht, 01840 - 14166
Utrecht Hoog Catharijne Information Centre (Urban renewal project; film etc.)	by appt. only	Hoog Catharijne, Utrecht, 030-333141
Netherlands Railway Museum	Tues-Sat 10-17, Sun 13-17	Johan van Oldenbarneveldtlaan 6, 3581 XZ Utrecht, 030 - 318514
Veendam Peat Colonies Museum	Sun-Fri 14-17	Kerkstraat 18, 9641 AR Veendam, 05987 - 16393
Vlaardingen Sea Fisheries Museum	Mon-Sat 10-17, Sun 14-17	Westhavenkade 53, 3131 AG Vlaardingen, 010 - 348722
Wageningen International Soil Museum (soils from all over the world)	Mon-Fri 8.30-17.15 by appt. only	Duivendaal 9, PO Box 353, 6700 AJ Wageningen, 08370 - 19063
Agricultural Research Dept. Visitors' Centre	Mon-Fri 9-17	Mansholtlaan 12, 6708 PA Wageningen 08370 - 19119
Museum for historic agricultural equipment	Mon-Fri 9-12, 13.30-16	Droevendaalsesteeg 50, 6708 PB Wageningen, 08370 - 15774
Zaandam The Zaanse Schans (village of traditional Zaan timber buildings, with some windmills and various small museums)	July-Aug: 10-17 Sept./June: Tues-Sun 10-17	De Zaanse Schans, Kraaiennest 2, 1509 AZ Zaandam, 075 - 168218
Delta Region Delta Expo	Apr-15 Oct 10-17, 16 Oct-Mar, by appt. only	Haringvliet Locks, 3251 LD Stellendam, 01879 - 1600 (for appts. 16 Oct-Mar, National Tourist Office, Bezuidenhoutseweg 2, 2594 AV The Hague, 070 - 814191)
Eastern Scheldt Works (visit by bus to construction site of Eastern Scheldt dam, Information centre)	Apr-Oct: 10-17 Nov-Mar: Wed-Sun 10-17	Burgsluis, Schouwen-Duiveland (bus departs from here every half hour for the work island) Information Centre Work Island 'Neeltje Jans', 4328 ZG Burgh-Haamstede, 01115 - 2702

PLACE AND INSTITUTION	OPENING TIMES	ADDRESS AND TELEPHONE NUMB.
NATURE RESERVES, NATIONAL PARKS, RECREATIONAL AREAS		
Visitors' Centres:		
Amsterdam		
Amsterdam Wood, "Bosmuseum"	Mon-Sat 9-16, Sun 10-17	Koenenkade, Amsterdamse Bos, Amsterdam, 020 - 431414
Municipality of Amsterdam Water Supply Undertaking: visitors' centre in dune water catchment area	9-17; groups by appt. (tel. 023 - 288050)	Vogelenzangseweg, Vogelenzang, 023 - 246781
Castricum		
De Hoep Visitor's Centre (dunes)	May-Aug, 10-12, 14-17; Sept-Apr, Sun 13-16	Zeeweg, Castricum, 02518 - 52243
The Hoge Veluwe National Park, "De Aanschouw"	Apr-Oct, 10-17	Houtkampweg, Otterlo, 08382 - 627
Overveen		
The Kennemer Dunes Visitors' Centre	15 Apr-15 Sept, 9-16.30, 16 Sept-14 Apr, Sat-Sun 9-16.30	Militairenweg 4, 2051 EV Overveen, 023 - 271871
Spaarnwoude		
Crayenstein Visitors' Centre (recreational area)	Apr-Oct, Sat 13-17, Sun 11-17 (at other times by appt.)	Machineweg 1, Halfweg, 02907 - 2644
Texel, Natural Recreation Centre (Texel and Wadden Sea)	Mon-Sat 9-17	Ruyslaan 92, 1796 AZ De Koog, 02228 - 741
Ossenzijl (Ov)		
"De Weerribben" (area of lakes and low peat in N.W. Overijssel)	Sat-Tues: 13.30-16.30 Wed-Fri: 10-16.30	Hoogeweg 27, 8376 Em Ossenzijl, 05617 - 272
Nederweert (L)		
"Mijl op Zeven" (De Peel peat bog, S.E. North Brabant)	Apr-15 Sept, 9-18, Sat-Sun 10-18	Moostdijk 8, 6035 RB Nederweert 04951 - 41497
ZUYDER ZEE REGION		
"Nieuw Land" Information Centre (Zuyder Zee works general; films)	Apr-Oct: 10-17; Nov-Mar: Mon-Fri 10-17, Sun 13-17	Oostvaardersdijk, 8242 PA Lelystad, 03200 - 27799
Schokland Museum on the former island of Schokland (geology, history, archeology)	Mon-Sat 9-17, Sun 10-18	Schokkeringweg, Ens, North East Polder, 05275 - 1396
Museum of Maritime Archeology	Mon-Sat 9-17, Sun 10-18	Vossemeerdijk 21, 8251 PM Ketelhaven, East Flevoland, 03210 - 3287
Zuyder Zee Museum (history of Zuyder Zee and environs)	Mon-Sat 10-17, Sun 12-17	Wierdijk 18, 1601 LA Enkhuizen, 02280 - 10122
BOAT TRIPS/TOWNS		
Amsterdam – through canals and harbour	throughout the year	Rederij P. Kooy, Oude Turfmarkt 0/125, 1012 GC Amsterdam, 020 - 233810, and others.
Rotterdam – through the port	throughout the year	Spido b.v., Willemsplein 20, 3016 DR Rotterdam, 010 - 135400
OTHER BOAT TRIPS		
(limited selection, further information from: National Tourist Bureau, Bezuidenhoutseweg 2, 2594 AV The Hague, 070 - 814191)		
Delta Region		
Haringvliet, from Rotterdam	July/Aug.	Spido, Willemsplein 20, 3016 DR Rotterdam, 010 - 135400
from Willemstad	Apr-Sept	Otter, Pr.Christinastraat 61, 4797 HP Willemstad, 01687 - 2814
Eastern Scheldt	Mid May-Sept	T. den Breejen, Zandkreekstraat 17, 4301 WJ Zierikzee, 01110 - 4995

PLACE AND INSTITUTION	OPENING TIMES	ADDRESS AND TELEPHONE NUMB.
Frisian Lakes		
from Leeuwarden		Stad Dokkum, Tijnjekade 31, 8936 AB Leeuwarden, 05100 - 39290
from Sneek		Harder en van der Werf, 1e Oosterkade 6, 8605 AA Sneek, 05150 - 17314
Loosdrecht Lakes		
from Utrecht	Mar-Oct	Rondvaartbedrijf Utrecht, Oudegracht t/o 85, 030 - 319377
from Loosdrecht	Mar-Oct	Wolfrat, Oud Loosdrechtsedijk 165, 1231 LV Loosdrecht, 02158 - 3309
Lake IJssel		
Urk-Enkhuizen	May-mid-Sep (not on Sun)	Friese Recreatie Onderneming b.v. Jol 36, 8446 EZ Heerenveen, 05130 - 27030
Enkhuizen-Stavoren	mid-May-mid-Sept	Rederij NACO b.v., Stationsweg, Alkmaar, 072 - 118646

Addresses of organisations not mentioned above.

Amsterdam, Municipal Port Department	Havengebouw, De Ruyterkade 7, 1013 AA Amsterdam	020-221201
Central Bureau of Statistics CBS	Prinses Beatrixlaan 428, 2273 XZ Voorburg	070-694341
National Tourist Office	Bezuidenhoutseweg 2, 2594 AV The Hague	070-814191
Department of Waterways, Delta Division, Information Department	van Veenlaan 1, 4301 NN Zierikzee	01110-2851
Government Service for Land and Water Use	Griffioenlaan 2, 3526 LA Utrecht	030-859111
The Hague, Municipal Information Centre	Groenmarkt 7, 2513 AL The Hague	070-624121
Ministry of Agriculture and Fisheries, Information Department	Bezuidenhoutseweg 73, 2594 AC The Hague	070-793911
Ministry of Welfare, Health and Cultural Affairs Information Department	Steenvoordelaan 370, 2284 EH Rijswijk	070-949233
Ministry of Economic Affairs Information Department	Bezuidenhoutseweg 151, 2594 AG The Hague	070-814111
Ministry of Housing and Physical Planning Information Department	van Alkemadelaan 85, 2597 AC The Hague	070-264201
Ministry of Public Health and Environmental Hygiene Information Department	Dr. Reijerstraat 8-12, P.O.Box 439, 2260 AK Leidschendam	070-209260
Ministry of Transport, Waterways and Communications Information Department	Plesmanweg 4, 2597 JG The Hague	070-747474
National Association for the Conservation of the Wadden Sea	Voorstraat 18, 8861 BK Harlingen	05178-5541
National Geological Service	Spaarne 17, 2011 CD Haarlem	023-319362
National Historic Buildings Conservation Service	Broederplein 41, 3703 CD Zeist	03404-28122
National Physical Planning Agency	Willem Witsenplein 6, 2596 BK The Hague	070-264201
Department of Waterways, Information Department	Koningskade 4, 2596 AA The Hague	070-264011
National Water Supply Institute	Nieuwe Havenstraat 6, Voorburg	070-694251
Netherlands Railways Educational Information Department	Moreelsepark 1, 3511 EP Utrecht	030-353630
Recreation Foundation	Statenplein 1, 2582 EW The Hague	070-500100
Rotterdam, Municipal Information Department	Coolsingel 40, 3011 AD Rotterdam	010-179111
Royal Netherlands Geographical Society, KNAG	Weteringschans 12, 1017 SG Amsterdam	020-277716
Royal Netherlands Tourist Association, ANWB	Wassenaarseweg 220, 2596 EC The Hague	070-264426
Rijnmond Authority, Information Department	Vasteland 96-104, P.O. Box 23073, 3001 KB Rotterdam	010-111320
Soil Mapping Foundation STIBOKA	Staringgebouw, Marijkeweg 11, 6709 PE Wageningen	08370-19100
South IJsselmeer Polders Board	Zuiderwagenplein 1, 8224 AC Lelystad	03200-26844
idem	Raadhuis, Kerkstraat 98, 1354 AA Almere	03240-10194
State Printing and Publishing House	Chr.Plantijnstraat, 2515 TZ The Hague	070-789911
Topographical Service	Westvest 9, 2611 AX Delft	015-120846
Utrecht, Municipal Information Department	Slachtstraat 12, 3512 BC Utrecht	030-328511
IJsselmeer Polders Authority, Information Department	Zuiderwagenplein 2, 8224 AD Lelystad	03200-99111

IV – ABOUT THE IDG

Annual Report for 1981 and activities during the first half of 1982.

1 April 1981 was the tenth anniversary of the Bureau of the Information and Documentation Centre for the Geography of the Netherlands. The many positive replies received during the past year to the questionnaires from the 1979-80 Bulletin acted as a stimulus to begin the second decade with fresh resolve.

The total number of requests for information and/or documentation received during these past ten years exceeded 7,000. 1,084 requests were received in 1982, from 68 countries, bringing the total number of countries to which the IDG has extended information to 96.

In the series of information publications issued by the IDG in collaboration with the Ministry of Foreign Affairs, Dutch, English, French and German language versions of the completely revised Zuyder Zee/Lake IJssel guide have appeared during the past year as well as the IDG Bulletin for 1980-81, with a leading article about the Region of the Great Rivers. A set of 36 slides on the geography of the Netherlands (see p. 62) was also produced.

A revised edition of the Wall Map of the Netherlands on a scale of 1 : 325,000 is currently in preparation and will probably appear towards the end of 1982.

The necessity for economies at the Ministry of Foreign Affairs has made itself felt in a reduction in the number of copies of the Bulletin printed. The number of copies of the 1980-81 Bulletin and of the present Bulletin, is half that of Bulletins of previous years. It will therefore be clear that the IDG and the Embassies will have to be less generous in the distribution of these publications.

A first Franco-Dutch conference about the mutual revision of geography teaching aids was held in Utrecht during the latter part of 1981. The participant on the French side was the 'Association des Professeurs d'Histoire et de Geographie'. A final report of this meeting, partly in French, partly in English, was published at the beginning of 1982. At the same time a report was published partly in Dutch and partly in English of the exchanges of school textbooks between the Netherlands and Rumania and between the Netherlands and Japan.

The exhibition entitled "The Netherlands ± Water", which was first seen in 1980 at the XXIVth Congress of the IGU in Tokyo, was shown in eight institutions in Denmark during the second half of 1981 (including the occasion of the annual conference of the 'Geografforbundet'). In April the exhibition was subsequently on view at the annual conference of the 'Geographical Association' in London, and part of it in June at the 'Deutsche Schulgeographentage' in Basle.

Lastly, the IDG is able to report with great pleasure the establishment of its first European cousin: the 'Geografisch Informatie- en Documentatiecentrum van Vlaanderen' (Geographical Information and Documentation Centre for Flanders). The Bureau of this centre has been functioning since November 1981 at the following address: GID Vlaanderen, Kon. Astridplein 26, 2000 Antwerp, Belgium.

Aims and activities.

For those readers who are making the acquaintance of the IDG for the first time through the medium of this Bulletin there follows finally, a summary of the IDG's origins, aims and activities.

The Information and Documentation Centre for the Geography of the Netherlands is a non-profit making body, whose aim is to supply information and documentation about the geography of the Netherlands to institutions and bodies outside the Netherlands concerned with education, study and information, in the widest sense, about that country.

The idea of establishing such centres derived from a conference about the correction of geography school textbooks, held in Ireland in 1963 under the auspices of the Council of Europe. The Centre has been functioning since 21st September 1964. Under the pressure of circumstances (a parliamentary question about incorrect statements about the Netherlands in a foreign geography textbook) activities had to begin before a definitive form of organisation had been worked out. On 9th December 1969 the Centre became a foundation and, on 1st April 1971, the Bureau of the Centre, established in the Geography Department of the University of Utrecht, was able to begin operating. The necessary funds for the functioning of the Bureau derive from an annual subsidy of the Ministry of Education and Science; publications, exhibitions, conferences etc. are largely financed by the Ministry of Foreign Affairs.

The work done so far can be divided into a number of categories:

- replying to letters from all parts of the World. The letters contain a great variety of requests for information about the geography of the Netherlands, as well as for the supply of visual material, for addresses or assistance in the preparation of field excursions.
- the reception of foreign geographers preparing, for example, a publication about the geography of the Netherlands or a field excursion. The Bureau offers, inter alia, the possibility of consulting a bibliography of foreign language publications about the geography of the Netherlands and a modest collection of photographs.
- the compilation of information in different languages (brochures, guides, wall map, bulletin; see page 56), in collaboration with the Ministry of Foreign Affairs.
- the compilation of a bibliography of foreign language publications, principally published since 1945, about the geography of the Netherlands. Lists have been compiled for distribution of the titles in the English, French and German languages contained in the bibliography.
  In addition, a card index has been made of all the visual material (maps, photographs, films etc.) illustrating the geography of the Netherlands.
- the organisation of bilateral conferences on the mutual revision of geography teaching material.
- attempting to publicise the Centre's existence and mode of operation among as wide as possible a circle of foreign geographers.

Appendix 1

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Amsterdam; Statistics of the port (annual)
Municipal Port Authority of Amsterdam

Ayodeji, O.
Recent economic and employment changes in Rijnmond: discrepancies with population dispersal
Delft, Research Centre for Physical Planning TNO , 1980 (64 pp.)

Berggren, H. -
The construction of the storm surge barrier in the Eastern Scheldt
in: Rotterdam/Europoort/Delta, (1980) no.6, p. 39-47.

Central Bureau of Statistics
- Bevolking der gemeenten van Nederland op 1 januari 1981; 88 pp., Price: Hfl. 10,50
  (Population of the municipalities of the Netherlands, 1st January 1981)*
- Regionaal Statistisch Zakboek 1981; 240 pp., price: Hfl. 25,–
  (Regional Statistical Review, 1981)
- Statistical Yearbook of the Netherlands 1981; 370 pp., price Hfl. 60,–*
- Statistisch Zakboek 1982; 378 pp., price Hfl. 18,50*
  (Pocket Yearbook 1982)*
- 80 Jaar Statistiek van Nederland; 308 pp., price: Hfl. 30,–
  (80 Years of Statistics in the Netherlands), 1979

The Hague, Staatsuitgeverij.

* annually published

Evendijk, J.E. –
Issuing alerts to reduce the effects of air pollution episodes in the Netherlands
in: Land & Water International, 41/1980, p. 12-21

Griffiths, R.T. –
The Economy and Politics of the Netherlands since 1945
Martinus Nijhoff, The Hague, 1980, 311 pp.

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Foreign manufacturing establishments in the Netherlands
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Van Lier, H.N. and C. Bijkerk –
Outdoor recreation in the Netherlands, I
in: Landscape Planning, Amsterdam, vol. 7, no. 3, Oct. 1980, p.313-328

Van Lier, H.N. –
Idem, part II
in: idem, p. 329-343

Ministry of Agriculture and Fisheries
- Aspects of Dutch agriculture; 56 pp.
- Dutch agriculture in facts and figures; 15 pp.

The Hague, 1981.

Ministry of Foreign Affairs
The Kingdom of the Netherlands; facts and figures.
This publication comprises a.o. the following parts:

- Country and people (geography, population)
- The Economy
- Agriculture and Fisheries
- Transport and Communications
- Health and Environmental Protection
- Housing and Physical Planning
- Public Works

The Hague, 1978/1979.

60

Ministry of Housing and Physical Planning, The Hague
- Summary of the Report on urbanisation in the Netherlands, *) 1976, 14 pp.
- Summary of the Rural Areas Report, *) 1978, 36 pp.

Ministry of Transport and Public Works, The Hague
- The Delta project; 1977, 15 pp.
- Room at last; the IJsselmeerpolders described and illustrated; 1976, 48 pp.
- Transport policy and the development of the transportation network in the Netherlands; 24 p.

Netherlands Inter-University Demographic Institute/Netherlands Demographic Society –
Selected annotated bibliography of population studies in the Netherlands, 1980
Voorburg, 1981

OECD Economic Surveys; NETHERLANDS
Paris, OECD, March 1981, 60 pp.

Pinder, D.A. –
Community attitude as a limiting factor in port growth: the case of Rotterdam
in: Cityport industrialization and regional development, spatial analysis and planning strategies, chapter 13, p. 181-199; edited by B.S. Hoyle and D.A. Pinder; Pergamon Press, 1981, Oxford etc.

Planning and Development in the Netherlands
Vol. XII, Nr. 2, 1980, Van Gorcum, Assen with articles on:
- Questions relating to future regional policy
- The future of the Quaternary sector
- Structural outline plan Civil Aerodromes
- The development of Dutch industry in relation to government policy measures and plans

Planning and Development in the Netherlands
Vol. XIII, Nr. 1, 1981, Van Gorcum, Assen
Special issue on Immigrant Ethnic Minorities in the Netherlands

Planning and Development in the Netherlands
Vol. XIII, Nr. 2, 1981, Van Gorcum, Assen with articles on:
- The Dutch economy in 1985
- Energy policy in the Netherlands
- Industrial development and sectoral policy in the Netherlands economy
- Relations between central and local governments in the Netherlands

Plassche, O.v.d.
Holocene water-level changes in the Rhine-Meuse Delta as a function of changes in relative sea level, local tide range and river gradient
in: Geologie en Mijnbouw, no. 4, Dec. 1980, pp. 343-352

Polman, G.K.R. –
The Oostvaardersplassen, a waterfowl reserve in the lately reclaimed Flevoland Polder
in: Land & Water International, 44/1981, p. 19-24

Rotterdam Port Authority –
- Review Map (1:80.000) of the Rotterdam/Europoort port area
- Statistical Review, annually published

Rijksdienst voor de IJsselmeerpolders, Lelystad **)
Flevoland, Facts and Figures (annually), 36 pp.

Saeijs, H.L.F. –
Ecological impact of the Delta Projects in the Netherlands
in: Land & Water International (NEDECO, P.O.B. 80508, 2508 GM The Hague)
- (1979) no. 40, p. 20-34, part 1;
- (1980) no. 42, p. 9-16, part 2

Schmal, H. (ed.)
Patterns of European Urbanisation since 1500
Croom Helm, London, 1981, with chapters:
- Deurloo, M.C. and G.A. Hoekveld
  The population growth of the urban municipalities in the Netherlands between 1849 and 1970, with particular reference to the period 1899-1930 (pp. 247-284)
- Van Engelsdorp Gastelaars, R. and M. Wagenaar
  The rise of the 'Randstad', 1815-1930 (pp. 229-246)

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*) for the other reports and structure schemes in the field of physical planning, see Section III. 3 of this Bulletin.

**) a complete list of publications issued by the IJsselmeer Polders Development Authority is obtainable from the Authority's Information Department (see list of addresses on p. 55).

Siegers, J.J. and M.N. Stijnenbosch –
A regional analysis of the distribution of the number of employees in the Netherlands by industrial sectors and occupational groups, 1973
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Tamsma, R –
The Netherlands in one hunderd maps.
Amsterdam, Royal Dutch Geographical Society, 1977.
Special issue T.E.S.G. (obtainable from IDG)

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Geography Department of the State University Groningen, 1980, 98 pp.

Thomas, P.R. –
Changing pattern of population growth in the Netherlands
in: Geography, vol. 65, Part 3, July 1980, pp. 224-229.

De Vries, J.J.
Fresh and salt groundwater in the Dutch coastal area in relation to geomorphological evolution
in: Geologie en Mijnbouw, vol. 60 nr. 3, Sept. 1981, p. 363-368

Publications IDG/Ministry of Foreign Affairs, Utrecht/The Hague

- Compact Geography of the Netherlands; 3rd.ed., 1979, 44 pp.
- Pictorial Atlas of the Netherlands; 1977, 40 pp.
- Wall Map of the Netherlands, scale 1:325,000 (revised edition appears in 1983)

These publications are obtainable in the following language versions:
Dutch – German – English – French – Danish – Spanish – Portuguese – Italian – Polish – Russian – Indonesian – Japanese – Arabic.

- IDG-Bulletin (annually)
  Language versions: Dutch – German – English – French

- Randstad Holland; 1980, 72 pp.

- The South-West Netherlands; 2nd.ed., 1977, 60 pp.

- Zuyderzee/Lake IJssel; 3rd.ed., 1981, 72 pp.
  Language versions of these publications (at the same time excursion guides):
  Dutch – German – English – French

- Agriculture in the Netherlands: leading article in Bulletin, 1977-78 (pp. 5-29).

- Industry in the Netherlands: leading article in Bulletin, 1976-77 (pp. 5-22).

- Netherlands & Water: leading article in Bulletin, 1978-79 (pp. 5-56).

- Physical planning in the Netherlands: leading article in Bulletin 1979-80 (pp. 5-34).

- The region of the great rivers: leading article in Bulletin 1980-81 (pp. 7-33).

The geography of the Netherlands in pictures
Series of 36 colour transparencies with explanatory text; 1981
Obtainable from IDG, Utrecht; price Hfl. 40,–.

Periodicals

– T.E.S.G. (Tijdschrift voor Economische en Sociale Geografie; Journal of Economic and Social Geography).
6x per year; partly in English
Subscription rate: Hfl. 87,–.
Royal Dutch Geographical Society (KNAG), Weteringschans 12, 1017 SG Amsterdam.

– Rotterdam Europoort-Delta
4x per year; in English.
Havenbedrijf der Gemeente Rotterdam, address: Europoint III, P.O. Box 6622, 3002 AP Rotterdam.

Atlases

– Meulenhof-Educatief b.v.
Schoolatlas for secondary education
Amsterdam, 1978. price: Hfl. 46,75. ISBN 90 280 0794 6.

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– Wolters-Noordhoff b.v.
De Grote Bosatlas; 49th rev. ed., 195 pp.
Groningen, 1981, price: Hfl. 62,75. ISBN 90 01 12100 4

Topographical Maps

Topografische Dienst, Westvest 9, Delft.

– Scale: 1:10.000
only in black-and-white; price: Hfl. 13,50
– Scale 1:25.000 and 1:50.000
in black-and-white, price Hfl. 5,20
in multi-colour print, price: Hfl. 9,10
See page 63

Transparencies

FIBO-Beeldonderwijs, Zeist: Series of colour-transparencies (textbooks in Dutch)

537 – De Zuiderzeewerken (20)
691-2-3 – Deltawerken (63)
384-5 – Waddenzee en Waddenland (Wadden Sea Area, 48)
386-7 – De Randstad Holland (40)
225 – Rotterdam (25)
694 – Het Polderland (20)
696 – Langs de grote rivieren (the big rivers; 20)
697 – De kustduinen (the dunes; 20)
699 – Zuid-Limburg (20)
649-50 – De kust (the coast; 60)
651-2 – Laag-Nederland (Low-Netherlands; 60)
647-8 – Onze waterwegen (waterways; 60)
638 – Ons drinkwater (our drinking water; 15)
662 – Tuinbouw (Horticulture; 20)
663 – Veeteelt (Livestock farming; 20)
The prices vary between Hfl. 20,– and Hfl. 60,–, according to the number of transparencies.
For copyright and orders: FIBO-beeldonderwijs, Utrechtseweg 66-68, Zeist.

IDG, Utrecht
The geography of the Netherlands in pictures
Series of 36 colour transparencies with explanatory text; 1981
Obtainable from IDG, Utrecht; price HFL. 40,– (see p. 62)

Meulenhoff-Educatief Amsterdam
– Series of colour-transparencies (aerial photographs)accompanying the textbook "De Geo Geordend III"
200 transparencies; price Hfl. 252,--
Textbook (in Dutch): price: Hfl. 37,--.

Polyvisie, colour slide series:

C 7400 – What is happening to the Wadden Sea? (72 slides)
K 9157 – The water supply of the Netherlands (44)
K 3020 – Threatened landscapes (Tape slide presentation, 96 slides with tape cassette)
K 3015 – The energy supply of the Netherlands (36)
K 9101 – Sea becomes land (26)
K 9159 – Southern Flevoland (12)
K 9162 – The enclosing dam (12)
K 9163 – Dike construction (12)
K 9164 – Reclamation (12)
K 9152 – The Dutch Coast (31)
K 9158 – Our modern ports (24)
K 9161 – Europort (12)
K 9173 – Rotterdam, gateway to Europe (12)
K 3018 – The Blast furnaces (12)
K 3019 – Netherlands Railways (12).
Prices vary from Hfl. 11,50 to Hfl. 130,00, depending upon the number of slides.
For copyright and orders: Polivisie, 's-Gravelandseweg 78a, Hilversum.

Transparencies for the overhead-projector

IVAC, Bergensesteenweg 691, 1070 Brussels

– Transparencies for the overhead-projector, series no. 4005, comprising the following parts:

1. Land uit zee (land reclamation, 5 transparencies)
2. Nederland; bevolkingsexplosie (growth of population; 4)
3. Tot voor 30 jaar overwegend een landbouwland (agricultural economy; 5)
4. Groeiende industriestaat sinds WO-II (industry; 5).

Wall Maps

Van Goor Zonen, P.O. Box 70707, Amsterdam

- Staatkundige kaart van Nederland (The Netherlands; provinces, with blank work map on the reverse side); ISBN 90 10 030350, 1 : 275,000. Price: Hfl. 184,25

IDG/Ministry of Foreign Affairs

- Wall Map of the Netherlands, 1 : 325,000 (types of landscape; revised edition appears in 1983)

Wolters-Noordhoff, P.O. Box 58, Groningen

– The Netherlands, General, 1 : 275,000, ISBN 9001 96176 2;	Hfl. 158.–.
– The Netherlands in European Space, 1 : 750,000, ISBN 9001 96081 2;	Hfl. 158.–.
– The Netherlands – relief, 1 : 300,000, ISBN 9001 96083 9;	Hfl. 158.–.
– The Netherlands – land use, 1 : 300,000, ISBN 9001 96082 0;	Hfl. 158.–.
– The Randstad Holland, 1 : 115,000, ISBN 9001 96084 7;	Hfl. 158.–.

Malmberg, P.O. Box 233, 's-Hertogenbosch

– Satellite photomap of the Netherlands, 1 : 275.000, with explanatory booklet (in Dutch);	Hfl. 40.–.

THE GEOGRAPHY OF THE NETHERLANDS IN PICTURES

A series of 36 colour slides compiled by the Information and Documentation Centre for the Geography of the Netherlands, including 6 maps and 17 aerial photographs.

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Order from:
IDG – Geografisch Instituut
P.O. Box 80115, NL 3508 TC Utrecht, The Netherlands.

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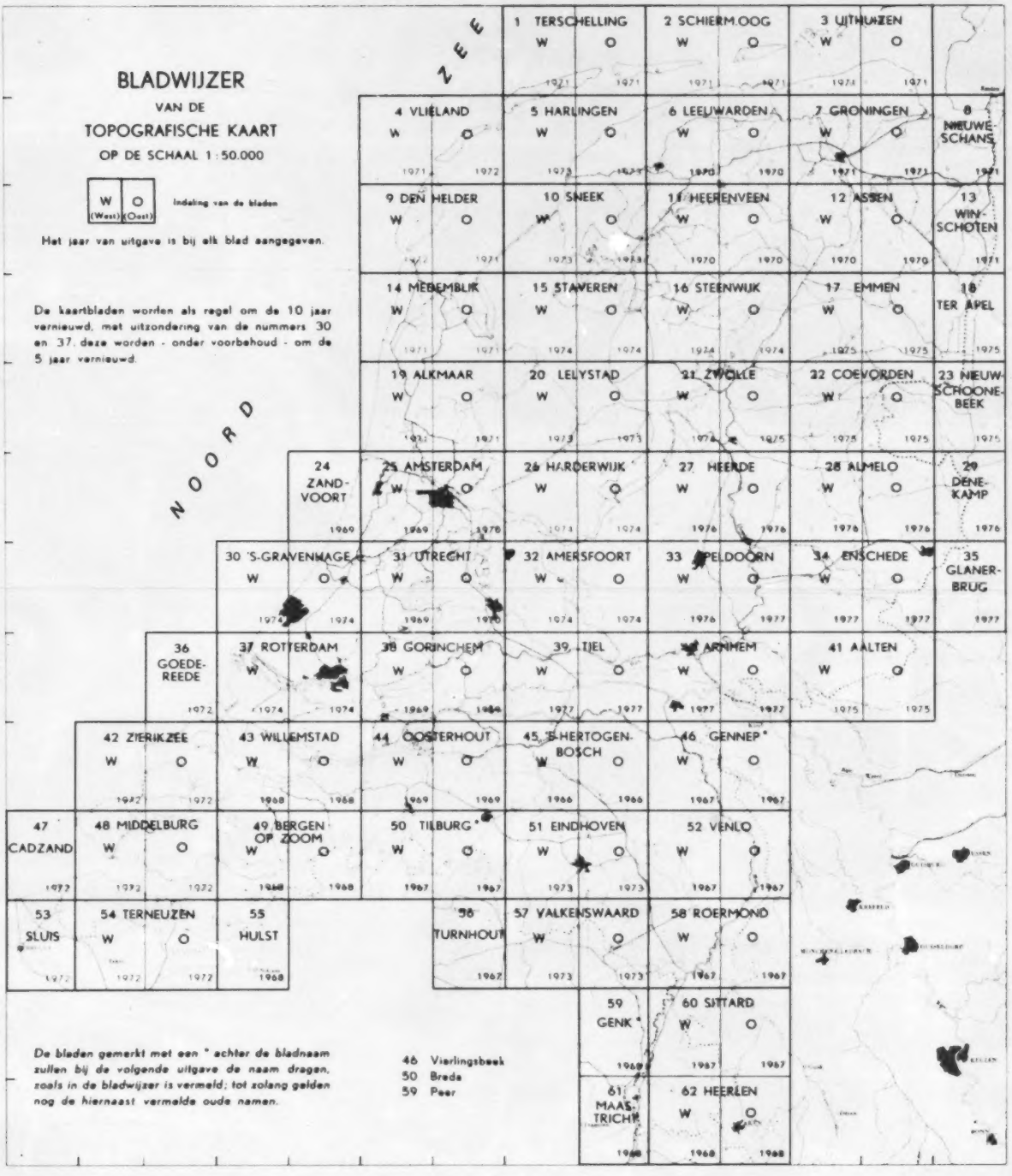

Each of the lettered sections is a sheet in the 1 : 50,000 map series; each of these sections covers 4 sheets of the 1 : 25,000 series.

For information about Water Control maps, Geological maps and Soil maps (prices, addresses where to order) apply to the IDG.

fig. 22 – Sheet index to topographic maps.